

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE;

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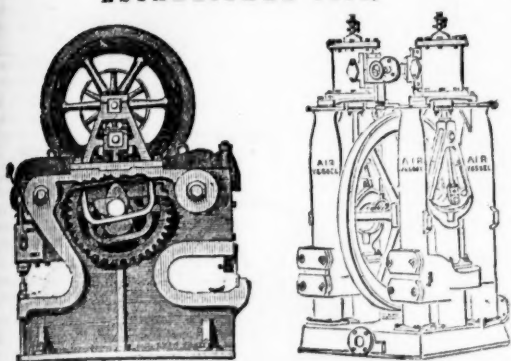
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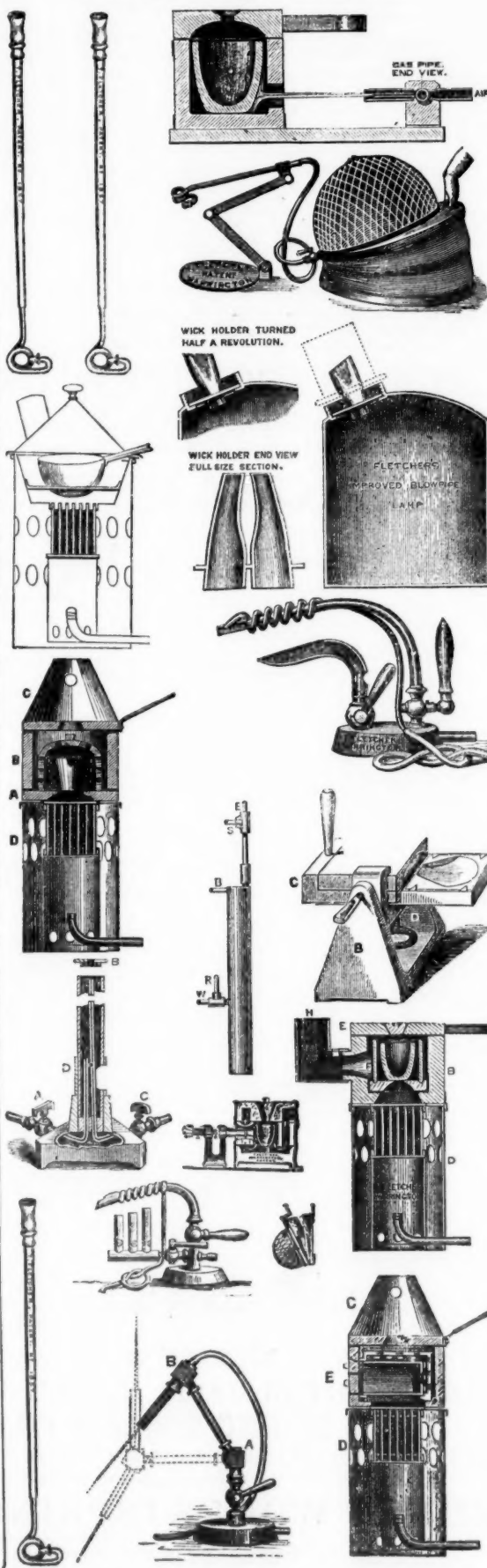
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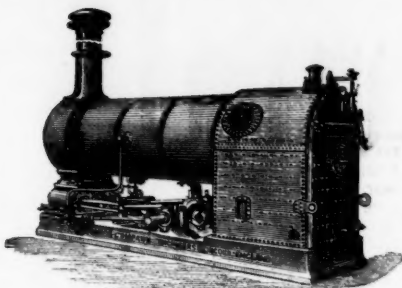
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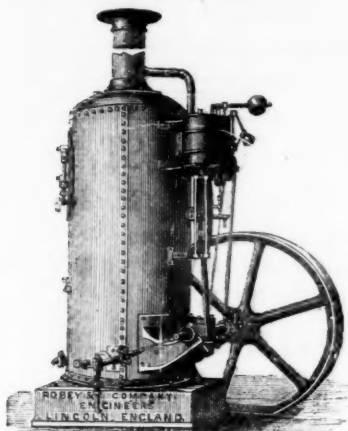
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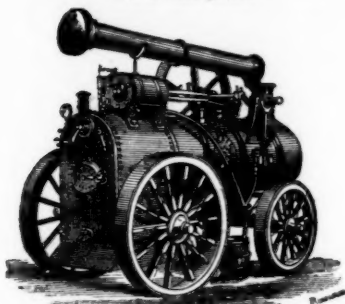
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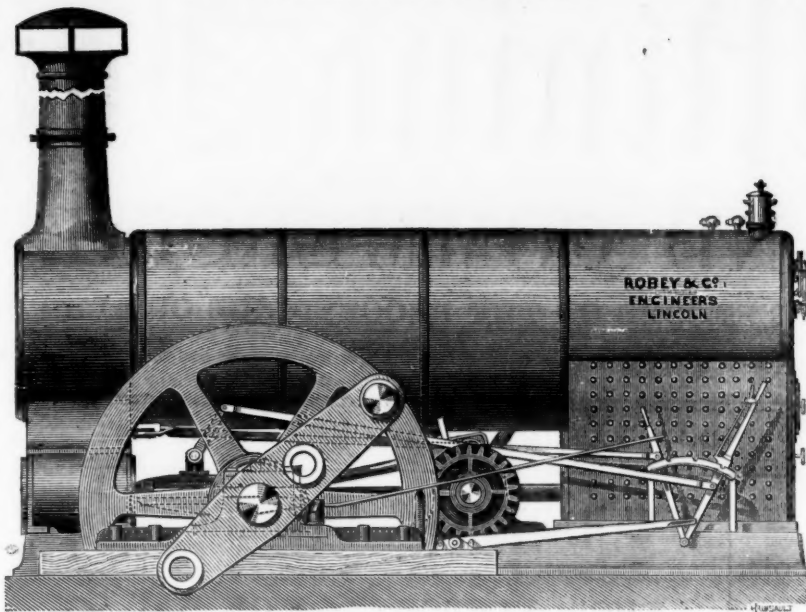


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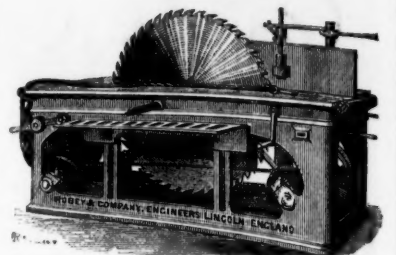
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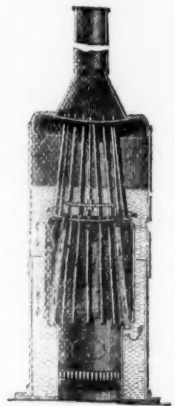
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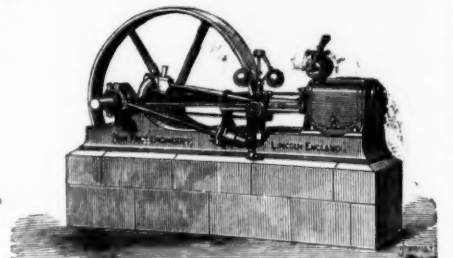
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Original Correspondence.

COPPER SMELTERS—COPPER MINES.

Sir.—Recently I have noticed in the Journal various remarks and communications respecting the very serious and low prices given to our Cornish and Devonshire copper mines at the Cornish Ticketings, as compared to those prices obtained for foreign ores at Swansea Ticketings. I consider there is very great credit due to Messrs. J. and R. Taylor and the directors of the Cape Copper Company for the bold and right-minded way they have acted in making arrangements with a well-known copper smelting firm at Swansea to smelt their ores for them—about 6000 tons during the next twelve months, and it is to be hoped that other large mining companies will follow such a laudable and beneficial example. I think, also, there is some degree of credit due to Mr. Peter Watson for the very clear statement he gave when so ably presiding at the half-yearly meeting of Devon Great Consols, Nov. 23.

Why cannot the directors of this influential company make a similar arrangement, selling as they do 11,000 to 12,000 tons of copper ore annually? It behoves the shareholders as well as the directors to look seriously and carefully into this all-important question, so that the ores may no longer be sold at such a grievous sacrifice.

I have been credibly informed this week that the smelters could have well afforded to have given 10s., 12s. 6d., 15s., and even 20s. to 25s. per ton more, according to produce, for the Devon Consols ore at the sale, on Nov. 22. By a close reference to the produce and prices obtained at the said ticketing and of those at Swansea this week, Dec. 11, there appears to be an actual difference of 12s. to 15s. per ton of ore, which is a startling revelation, seriously affecting this company and it is a matter requiring mature consideration by the shareholders and managers generally of all Cornish and Devon copper mines, for if the large mines suffer from such gross injustice do not the small struggling concerns also suffer even in a greater ratio?

The copper smelters have made enormous fortunes out of the Cornish and Devon mines, but the time has now come when one and all connected with mines must look, individually and collectively, to their own special interests, and seek for some sort of redress whereby they can realise for the produce of their mines more equitable prices. A combination appears to be the order of the day I may be permitted to point out or suggest certain combined interests in some of our Cornish and Devon copper mines. Many of the shareholders in Hingston Down Consols and Bedford United are also shareholders in Devon Great Consols, in all of which Mr. Thomas, the respected chairman of the latter company, has an interest. These three mines sell about 1300 tons of copper ore monthly. Messrs. J. and R. Taylor are the managers of West Tolgus, Mellanear, &c., which sell something like 1000 tons of copper ore monthly.

By combining and working harmoniously together the directors and managers might easily effect the necessary, radical, and perfectly legitimate reforms in the disposal of their minerals, and thus secure from 20s. to 30s. per ton more than can be obtained at the present farcical Ticketings. Shareholders cannot remain quiescent, and look on such a vexatious question with equanimity, and to the continued unfair prices arranged by the smelters. It is to be hoped that at the forthcoming sale of the eastern mines' ores next week much better prices will prevail—fair and just to all interested—otherwise the sooner the copper mines cease to sell at the Cornish Ticketings the better, and seek a market elsewhere. There are now only six smelting firms buyers of ores at the Cornish Ticketings, and ten or eleven at Swansea! Would it not be better for the Cornish and Devon mines' ores to be sold at the latter place; for, as I have shown, with the same produce 12s. 6d. to 15s. per ton has been given this week above what the Cornish ores realised on November 22.

JUSTICIA.

TASMANIAN TIN FIELDS—No. I.

Sir.—The mining population of this country will doubtless feel an interest in reading a description of the tin mines of the above colony from one who has been through nearly the whole of them, and took his notes on the spot.

I shall commence by giving a description of the mining operations carried on at George's Bay and Upper Ringarooma, a subject of general interest, and but little known to the public at large, as to the nature of the country and character of the works now in progress. The usual route is by Page's mail coach to Willis's Corners, and then by break to George's Bay. The trip from the Corners to Falmouth is one of the most interesting in the island to the tourist, as while the road is a capital one, passing through very level country, the mountain scenery on either hand is very varied, and a good view of some of Tasmania's finest mountains is obtained. First comes St. Paul's Dome, and then the grand old Ben Lomond and Tower Hill appear, with Mount Barrow, Ben Nevis, and Mount Victoria in the background, followed by the Mount Nicholas range, St. Patrick's Head, and many minor peaks. The beauties of St. Mary's Pass must not be overlooked, one of the public works in which Sir William Denison turned his engineering skill to account. Here the road winds for some three miles in sinuous curves along the side of a lofty basaltic range, the forest clothed hills rising several hundred feet above the road on the one hand, while on the other the traveller looks down a precipice into a deep and narrow gully, where tree ferns, musk, logwood, and other shrubs grow luxuriantly, but which opens out as it approaches Falmouth into a fertile and cultivated valley. The township of Falmouth is built on the sea-shore, and is not a very interesting place. The road to George's Bay runs close to the seashore for several miles through sandy, sterile country, lightly timbered, and covered with grass, trees, heath, and low scrub. Four miles from Falmouth the Scamander Bridge is crossed, and a few miles up this river are several farms. An unusual number of inlets from the sea occur along this part of the coast, some of which extend several miles inland. One very picturesque inlet, about twelve miles from Falmouth and six miles from George's Bay, is called Diana's Basin. Here the road turns somewhat inland, and becomes much rougher, with steep pinches up and down many of the hills. George's Bay is reached about 6.30 P.M. after crossing a very rickety wooden bridge over the head of the bay. George's Bay is a narrow landlocked inlet, extending some ten miles inland, the bridge crossing it about two miles from the upper end. Up to the time that the tin mines were started here this was a very quiet place; now, however, matters wear a different aspect. There are two good hotels. There are two stores, and a third is being erected. The conveyance of stores to the mines and tin ore from thence furnishes employment for a considerable number of people and horses.

The deposits of tin ore which have been discovered at George's Bay lie a few miles west of the township, and nearly 9000 acres have been applied for and surveyed under the Mineral Leases Act in 80-acre sections, though on many of the blocks not a sod has been turned, and only a small portion will ever be worked for tin. On the route to the mines, and close to the bay, the land is not rich, but on advancing further into the low ranges the country becomes more barren, the formation being granitic everywhere, and about the mines it presents a very close resemblance to the Goss Moors. Only this is partially covered with timber trees known as the bull oak, peppermint, and blue and white gum; the undergrowth is heath, cutting grass, and ferns. There are only two tin mining companies actually at work. Somewhat less than three miles from the bay is the abandoned claim of the Tasmanian Tin and General Mining Company's works, which after working for some months had to suspend operations, as the tin was very limited in quantity. The Launceston and George's Bay Company hold ten sections about six miles from the Bay, and have some average leads of wash dirt. The stripping above the wash dirt is from 8 to 12 ft. in depth, and a good deal of work has been done by the company, and several tons of tin ore got out, but not likely to be of any value to the shareholders. Near this is the Nil Desperandum claim, on which a good deal of work has been done, and some 10 or 12 tons of ore raised, and is now idle, because it will not pay costs. The St. Helen's claim lies west of these two about nine miles from

the Bay, and here a face or stopes has been opened, and found to be of no value.

Prospecting has been done on some claims which have proved to be of no value, while on others nothing has yet been done, and I should think never would be on the greater portion of them. The principal company here is the Ruby Extended, which is about two miles south of the Launceston and George's Bay Company, and nearly seven miles from the Bay. The claim consists of eleven 80-acre sections. This property was started in August, 1875. The workings are in a flat gully, nearly north and south. About four or five months were occupied in preliminary works, cutting tail and other races, making dam and opening out faces. Since then about 100 tons of tin ore have been raised. Owing to the gully being very flat nearly half a mile of tail race had to be cut to carry off the drainage from the workings, and a by-wash of equal length to turn the water out of the creek. About 40 chains along the tail-race a patch of wash-dirt was struck, and worked out, but the present workings are more extensive. They consist of three stopes or faces, named Nos. 2, 1, and 3. A description of one will serve for all. The stripping varies from 6 to 12 ft. in depth, and it is very heavy. Starting from the surface, several feet of very stiff tenacious black or yellow clay is first met with; under this is sometimes a foot or two of quartz, gravel, and granite boulders, among which the tin is found. Sometimes there are no headings, and the wash lies directly under the clay, but it always rests upon a granite bottom. These tin deposits were evidently placed in their present position by the action of water, and the wash runs in leads. It is richer in some places than in others, varying in depth from 3 in. to 13 in., and in the granite bottom are irregular holes, or "pockets," in which the wash is generally richest. In No. 2 working over three acres have been already stripped and washed out. One sluice box is at work here. About 100 yards higher up the gully—that is in a southerly direction—is No. 1 face, and here some wash-dirt is being got out. No. 3 face is a little higher up still. At each of these faces is a sluice box at work, supplied from a dam of water placed above, and from those three boxes about 2 tons of tin ore is obtained per week. The number of men employed on this claim is 43. The cost of cartage from the claims in this locality is about 14 per ton to the shipping port, which is a very small item in comparison to what the other claims in the colony have to pay for the transit of their ores.

Leaving George's Bay for Gould's Country, the road at first runs north of west, and a few hundred yards from the township a fork is reached, the road to the right leading along the east coast past the Bay of Fires, and round by Cape Portland to the north-east coast, that to the left taking us to Goshen and Gould's Country.

Resuming our journey at the fork, and taking the road to the left, we find it trends first north-east and then westerly, the upper Ringarooma Mines lying nearly due west in a straight line from the Bay. For the first few miles the road is tolerably level, afterwards passing over low ranges, the soil being poor, principally of a light loamy nature, intermixed with a good deal of sharp quartz, sand, and gravel. The vegetation is heath, grass trees, umbrella ferns, and low scrub, and the timber principally peppermint, with a sprinkling of bull oak, blue and white gum. The road, as is usual in such country, is dry and hard. Eight miles from the Bay we cross a wooden bridge over a stream known as Power's Rivulet, or Little Goshen River, and we are now in the district of Goshen, which takes its name from the farm of Mr. Warland, the first settler here. Fine stream tin ore is found about here, though not in large quantities, but Mr. Warland, jun., is working a small creek which crosses the road between Power's Rivulet and Little Goshen Farm, and is in his father's property. The products obtained by him run from 2 to 4 ozs. to the dish of wash-dirt (the dish contains about 20 lbs. weight). Among the tin ore are a few particles of reef gold, evidently carried down with the tin from a higher level. Rather more than ten miles from the Bay the George's River is crossed. The natural vegetation now becomes much heavier, the fern trees begin to appear, the timber is loftier, and the scrub much denser. The road continues to be passable for another mile, when the Groom River is crossed, and the bog holes in the roadway become pretty frequent. We have now reached Gould's Country, sometimes called New England. It is bounded by the Groom and Ransom Rivers.

Sticker, Cornwall, Dec. 5.

J. MUFFORD.

[To be continued.]

THE FLAGSTAFF MINING COMPANY.

Sir.—As the meeting of the Flagstaff promissary and debenture holders, held on Friday last, was "private and confidential" in its character, consequently the Press not represented, the *communiqué* you inserted on Saturday last must have been forwarded to you by some attending member, and as it embodies within its small scope a construction totally at variance with the facts brought out, and a *suppression veri* amounting almost to what may be deemed an intentional fabrication, I feel constrained in the interests of justice to lay before you a succinct narrative of the leading points elucidated from the carpings and bickerings of a divided board of directors, and the badgerings of a packed assembly.

The meeting, which consisted at first of about 40 gentlemen—shareholders, debenture holders, and intruders introduced at the instance of one of the directors—was informed by the Chairman after a long explanation of various salient points during his connection with the company, giving a history of the now notorious lease to Hunter, and how through this alone had they been able to turn out the Patrick and Davis party and get possession of the mine; that although the reward to Hunter appeared large, it should be borne in remembrance, and have its due weight, that he hazarded his life in rescuing this property from the unscrupulous hands of those who held it; that from this commission he was to finance a heavy loan in a territory where the normal rate of interest varied from 1½ to 2 per cent. per month, touching then on Hunter's management, and his withdrawal from the company, he stated that the majority of the board after long deliberation had deemed it their imperative duty to lay before the debenture holders (in the first place) the true position of their financial difficulties, and to consult with them as to the proper course to be adopted towards relieving the company of the terrible burden of debt now weighing them down to a state of insolvency. The estimated debts in Utah in July last amounted to the very large sum of \$160,000—an appalling legacy from Mr. Davis, and it was on the basis of this definite sum that an engagement had been entered into to lease the mine for three years to Mr. Billing, that gentleman to pay off the debts of the company, receiving as his remuneration one-fourth of the profits arising from working the mine, and to hand over the remaining three-fourths to be divided among the shareholders in dividends—in other words, the surrender to him of the original Hunter lease, but with several modifications considerably to the advantage of the company. Since the above date judgments to a very heavy amount had been obtained by various creditors on acceptances held from the Patrick party, of which the directors were in total ignorance, swelling the indebtedness until it now reached the immense sum of \$249,000. From advices lately received from their manager there was very grave fear that Mr. Billing would not be able to carry out his compact—in fact, that an acceptance for so small a sum as \$250, which the lessee had engaged to hand over to defray the current expenses of the London office, and due on Oct. 1, had not been met. The company was, moreover, involved in heavy lawsuits, in order to maintain its title to a large portion of the Flagstaff property, and within the last few weeks the jury had given judgment against them in the so-called Sarket suit, which hitherto they had imagined to be a blackmailing affair, and the Judge had awarded damages to the extent of \$45,000. This necessitated an appeal to superior courts, and possibly they might eventually have to appear before the Supreme Court at Washington. Personally he was confident of success ultimately, but this litigation involved them in heavy expenses. It was incumbent on him to make them thoroughly acquainted with all circumstances, whether deterrent or favourable, so that they might be the better able to grasp the present untoward situation, and wrest the property from the hands of the harpies who were continually preying on it.

Mr. Vincent (director) in a long, rambling speech threw out in-

sinuations against two of his colleagues—Mr. Harvey and Mr. Pearson—accusing them of issuing the circular calling this meeting together for stock jobbing purposes, or, in other words, to facilitate their carrying out a "bearing" operation. He condemned their transactions whilst in America, and stigmatised their contract with Mr. Billing as being made not in the interests of the company, but for their own aims and purposes. His earnest endeavours for the welfare of the company were continually thwarted by their machinations, and that the Chairman had so recently as this afternoon suppressed a letter from the manager containing the most assuring statements with reference to the late discoveries at the mine. He called on the debenture holders to request these two gentlemen to resign their position as trustees of the company, as they could no longer place confidence in them.

Mr. Pearson repudiated with the utmost warmth the imputations cast on them by the Professor, and assured the meeting there was not one word of truth in these cruel aspersions. So far from being engaged in a "bearing" operation to depress the value of the shares he had himself advanced 4000*l.* to rescue their property, and had never bought or sold a share which was not registered. The company's books were open for their inspection as to the extent of his dealings. The lease condemned in such uncontrolled language had, when deprived of the modifications so advantageous to the shareholders, met with the approval of Mr. Vincent when it was handed to Mr. Hunter.

Mr. Harvey deprecated such false charges, and with respect to the suppression of the letter referred to his time had been so occupied during the past two days attending the Court on his professional duties that he had not even read it. So far from concealing the purport of the letter he had not the slightest objection to its being read to them if it contained any satisfactory intelligence. The letter was then read by Mr. Vincent, and showed that the recent discoveries in the tunnel level and the five levels following in depth were of a very interesting character, presenting features which led to the belief that considerable ore bodies were being opened, the value of which he was unable from his want of technical knowledge to gauge, but believed there was exposed sufficient reserves to maintain the present rate of extraction for six weeks to two months. Thus this most important letter, which the Chairman was taunted with having suppressed, contained the most damning statement that could be made, and indeed showed conspicuously the most lamentable ignorance of the practical duties of a mine manager. Just fancy, Mr. Ed. tor, the great and flourishing Flagstaff Mine, which experts lately reported to have almost unlimited quantities of ore, now containing but six weeks' to two months' reserves, or (say) about 3000 tons! The shareholders might well say to the manager "We called thee to bless; but, lo! in thine ignorance thou has cursed it."

The delivery of these statements was subject to displays of temper from a very excited portion of the members, reckoning in its ranks several countrymen of the Professor. These assisted by an English sympathiser (clerk to a City solicitor well known to a great number of shareholders in mining adventures—say, the Emma, Tecoma, Flagstaff, Last Chance, Utah, Saturn, Camp Floyd, &c., *cum multis aliis*)—interrupted the proceedings frequently. One of our cousins, neither a debenture-holder nor shareholder, and should have been conspicuous by his absence, was particularly prominent with inuendoes having reference to the Mansion House. Another gentleman, rather more excited than his confederates, demanded in the most imperative and insulting manner, half leaning over the table, whether the Chairman had not a secret covenant with Mr. Hunter when granting to him the lease and smelting contracts whereby he would participate with the lessee in the spoils. The Chairman refusing to reply to a query so curtly and ungraciously propounded, the dissident cabal commenced such a series of sibilations, angry ejaculations, and running-fire comments, approaching nearly to a free-fight, that a gallant mentor, whom all parties esteem and honour, implored them to behave as reasonable men, and attend to the business of the meeting; then appealing to the Chairman whether such a statement of his connivance with Mr. Hunter as indicated by Mr. A was correct, received for answer an assurance that there never was any arrangement whatever between the lessee and himself, and that no one could be more dissatisfied with Mr. Hunter's proceedings, or had condemned them more strongly, than himself.

Mr. Pearson then calmly and dispassionately reviewed the financial difficulties in which the company was involved, and informed the debenture holders it was imperative that funds should be provided in the event of Mr. Billing failing to carry out his contract, so that the mine might be saved from being seized under the Omaha contract judgment, which was special, and without redemption. The total indebtedness, so far as at present ascertained, amounted to \$249,000, and the course of procedure he should recommend—Mr. Vincent here again declared the statements utterly fallacious and not to be depended on, that the whole affair was nothing but a rig in order to depreciate the property of the company, and that the two directors should be compelled to hand in their resignation as trustees for the debenture holders.

The Chairman said that personally he was only too willing to wash his hands of the whole concern; he had worked for them day after day and month after month for years, and neglected his own professional duties, having received no reward for his services; he had rescued their property from the American adventurers, and now his reward was this black ingratitude. He feared neither the closest scrutiny and investigation nor those threats of excited brains having reference to the Mansion House. He could not put this cut and dried resolution to the meeting, as he had no power to do so, the meeting having been summoned for a specific purpose—to consider the financial difficulties of the company. He felt very much the antagonism of Prof. Vincent, who was indeed the real trafficker in the shares of the company, and it was high time his conduct in certain transactions should be known to the shareholders, so that the blame should be placed on the right shoulders. Was it consonant with the duties of a director, or would they deem it honourable in any gentleman filling that position that he should go outside the board room and betray the secrets of the company to speculators on condition of his participating with them in their profits *dimiduum dimiduumque*, but not to be held responsible for any losses that might ensue? And yet the person who has so vilified us for having done our duty according to our best abilities—Mr. Vincent, the professor of Economic Geology and Metallurgy—had received hundreds of pounds from certain gentlemen on the above basis. One gentleman to whom he had thus imparted information, and from whom he had received benefits, was then in the room. He challenged the professor to declare whether he did not place his report on the mine, issued to the shareholders July 15, 1876, in the hands of one of these gentlemen before he had submitted it to his co-directors, for the express purpose that he might, as agreed, participate in the profits (no losses!) of a "bulling" speculation?

This thunderbolt was more than sufficient to break up the meeting without any business having been accomplished; the Chairman and his co-directors (Mr. Vincent and Mr. Garne excepted) vacated their chairs, and joined their friends in the body of the room. A solicitor's clerk then seized the opportunity of urging the passing of this so-called resolution, and a knot of Mr. Vincent's countrymen and friends—the greater portion of those present refusing to be mixed up with such a questionable proceeding—made a show of hands, counting 11 (four of whom were neither shareholders nor debenture holders), as against two, although they were cognisant of the fact of its gross irregularity, and could not be entered on the minutes.

I think, Mr. Editor, the foregoing exposition of facts will show you that I am correct in my statement, that by the suppression of this material point that the meeting had broken up when the resolution was carried (?); there was a deliberate intention to mislead you and deceive your readers, to the disparagement and annoyance of the two directors concerned, and that the assertion that "the Chairman had suppressed an important letter" was as false on the part of your correspondent as uncalculated for. Your informer, too, should have had the candour to acquaint you that Prof. Vincent was requested by the shareholders to resign his seat, in consequence of his proceedings as represented by the Chairman, at the board.

Naturally, Sir, a "Flagstaff Shareholder" will exclaim, *cui bono?*

What purposes were served by this bear-garden kind of discussion? I summarise the gleanings as follows:—

- 1.—The contract with Mr. Billing has not been carried out, to the great detriment of the company's financial position, and that the burden, monetarily, is too great for him to bear.
- 2.—That the debts, owing to the various creditors in Utah, as at present known, amount to the huge figure of \$249,000.
- 3.—That there is scarcely any money to defray the current office expenses, much less to take up the promissory notes now becoming due daily.
- 4.—That the mine, though valuable, is not equal to the expectation anticipated from the reports of experts and the assays of picked ores, and that the working of the mine during the past ten months shows a test of profits equal to 25,000% per annum.
- 5.—That under the judgment in the Omaha smelting contract the company has to pay \$4900 per month for ten months, and that if these payments are not punctually met the Omaha Company (Rush-ton, and our old friends Patrick and Davis) will assuredly avail themselves of the opportunity presented, and take possession of the mine, as under this decree there is no redemption.
- 6.—That the recent report from the manager—who confesses himself not to be relied on, not having yet been able to discover any affinity between the lawyer's desk and mineralogy—testifies to several important discoveries in the various levels, and that the reserves amount to one and a half or two months' extraction!
- 7.—That from the uncourteous treatment the directors experienced at the hands of many of those present, Sydney Smith's aphorism is established—A Corporation has no body to be kicked, nor a soul to be saved.

"If there's a hole in a yer coats I rede ye tent it!
A chiel's amang ye takin notes, an' faith he'll prent it."

KEMOWYTH.

FLAGSTAFF SILVER MINING COMPANY OF UTAH.

SIR,—I beg to send you herewith copy of letter under date Nov. 19, received from our manager in Salt Lake City, on Thursday, which in consequence of the meeting of the promissory note and debenture holders, held on Friday, I was unable to send you in time for last Saturday's Journal:—

The mine is now in good condition, and a large amount of what appears very good ore in sight. Of course how far these ore bodies will extend cannot be told, the peculiarity of the mine being that the ore lies in pockets and branches, it is difficult at any time to tell how long an ore body in sight will hold out. Professor Vincent estimated a much larger amount of ore in sight when here than we have since produced from the mine, yet all then in sight and other discoveries have been in the main worked out. Hence, if the present fine prospects change before a month do not be disappointed, although I do not believe they will. The tunnel level is looking very encouraging both on the face and on the face of a cross cut on it. The cross cut is 105 ft. from shaft, and is towards the footwall. The face of the tunnel is 45 ft. further. Second Level, 425 ft.; ore body 3 by 3 ft. going up. Further 200 ft., and at end of level, is a fair ore body crossing the level, about 12 ft. by 6 ft. wide, and a large amount of iron under it. Also on this level are two other small ore bodies. Third Level: 775 ft. from shaft is a large mass of ore and iron, being 20 ft. high, 10 ft. wide at top, and running down to a point like this [a wedge, or isosceles triangle, is here represented], which is the shape of the majority of the ore pipes or bodies. One-third of this body is good ore, two-thirds iron. At the end of level (8.5 ft.) is the best ore body in the mine, being fully two thirds good ore, much of it yellow carbonate, giving the whole body a yellowish cast. It is 18 ft. high, 14 ft. wide at top, and down to a point. [A similar figure to the foregoing, and approaching more nearly to an equilateral triangle, as the dimensions show, is here represented.] This has the appearance of holding, but has not been much developed yet.

Commencing on the 3rd level, 130 ft. from shaft, is a very large body of mostly iron ore, extending west to footwall nearly down to the 4th level, and running so much towards the north as to strike the 4th level about 300 ft. from shaft. The foreman estimates 1000 tons here, but mostly iron, the good ore having been largely taken out. In the 4th level, 400 ft. from shaft, is a large body of good ore, but none is now being extracted, as they have found it necessary to do some careful timbering, as it is a large excavation, and in a section of the mine where there has been much excavating done. Between the 4th and 5th levels, 320 ft. from shaft, is a small body—4 by 6 by 2 ft.—of very good ore, with prospects of growing larger. Between the 4th and 5th levels, 5-6 ft. from shaft, and higher than the last, is a large body of good ore—three parts ore and one part iron—and so branching out that I cannot easily describe it, but it promises plenty of ore. In the 5th level, 800 ft. cut, there has been a large body, which had been reported to me worked out, but has now good ore 1½ by 8 ft. wide, and the ground looks favourable for a good body. These are the principal ore bodies, besides which are many other small ones and feeders, which they are following. I do not attempt to estimate the ore in sight. I do not see how it can be done with anything like certainty. With such ore deposits it is at best but a guess, for the most promising is likely at any time, without notice, to run against a rock and cut off. I think, however, there is six weeks' or two months' working in sight, with several encouraging prospects, or workings, where the indications are good. I will add that I made a careful examination of every nook and corner of the mine, and, while I may be deceived, yet I think it looks very well, but I do not pretend this for an accurate report, for I cannot well give such an accurate statement or representation that you will clearly understand it. The ore bodies are irregular in size, form, direction of pitch, and distances from the wall. It will take a mining engineer days to properly report it. My report of it is a ledge of broken-up line-rock, 250 ft. wide, with pockets, pipes, and stringers of ore scattered here and there through it."

In a letter from the manager just to hand, dated Nov. 25, he states that "there have been mined and sold between the 1st and 6th of the present month 353 tons gross weight, or, deducting moisture, 313 tons net, and from the 14th to the 19th 553 tons gross, or 478 tons net, making together 791 tons net. The long interval between shipments was in consequence of an explosion in mine. The ore shipments for past week have exceeded any we have had, running from 60 to 75 tons per day. Mine is looking very well, but, as I have before suggested, the deposits are such as are liable at any hour to be cut off. Recently we have been unusually fortunate in developing many, and some large, ore bodies."

A. A. DE METZ,
Secretary.

FLAGSTAFF SILVER MINING COMPANY.

SIR,—I am glad to see by last Saturday's Journal that the debenture-holders of the company are alive to the necessity of protecting their own interests. I much regret that I was unable to be present at the meeting, and I do hope that the board will at once take steps to convene a meeting of the company so that the present unsatisfactory state of affairs may be remedied. Surely the shareholders and debenture-holders are the persons most interested in the company, and it appears to me that the board will be incurring a serious responsibility if they continue the management of the company after such a protest as that referred to in the Journal. I understand that at the meeting Sir Leopold Heath, referring to a correspondence published in the Journal of Nov. 24, stated that although he had not felt justified in giving to individual shareholders his reasons for withdrawing from the board, yet he had on his retirement, immediately after Mr. Pearson's return from America, in a letter to the Chairman of the board expressed his reasons fully, which letter the Chairman, although requested to do so, declined to read. Sir Leopold Heath, however, gave his reasons at the meeting, and strongly recommended the withdrawal from the board of the members implicated, and it was after this statement that the resolution set out in the Journal calling upon Mr. Harvey and Mr. Pearson to resign was passed almost unanimously.

Dec. 14.

A SHAREHOLDER.

EXCHEQUER GOLD AND SILVER MINE.

SIR,—At length the shareholders in this company have been favoured with the long-expected report of Mr. Henry Sewell, mining engineer, with his advice and recommendations as to the future working of the mine. The report is considered to be highly favourable, and, having been obtained at the expense of a few gentlemen, it undoubtedly may be considered as a reliable and bona fide expression of Mr. Sewell's opinion as to the position and prospects of this mine? It is also worthy of consideration that there is no expression of doubt whatever; but, on the contrary, a strong belief in its riches, in proof of which he mentions the fact of having under his inspection assayed some of the rich ruby ore, which has realised in value \$800 per ton of ore. Surely such a result, confirmed by such an eminent authority, is sufficient in itself to infuse renewed exertions on the part of the directorate, supported by the unanimity of the shareholders in the further development and prospecting of the mine as advised and recommended—the more especially as large sums of money have already been expended to a great extent in dead work, which under more careful supervision will be avoided, and the operations carried on as recommended by Mr. Sewell in sinking and prospecting.

At the meeting of shareholders held last week it was by resolution determined to raise the necessary funds by the issue of debentures bearing interest at 15 per cent., redeemable in two years.

The directors have such confidence in the future success of the mine as to induce them to advance 60000%, as represented, and surely the shareholders, one and all, should do their part at a critical moment, and cheerfully subscribe their iota in raising the required sum, which certainly would not exceed 1s. per share—a trifling amount in comparison to the issue at stake. As a shareholder, I consider it would be decidedly preferable to raise the required sum by each shareholder subscribing 1s. per share according to his holding, instead of issuing debentures on terms stated. But in either case the matter should be carried out promptly and without loss of time, otherwise other parties will be found too ready to step in and profit by all the expenditure already incurred, and then, when too late, the shareholders will regret that they ignored the advice given by so able and experienced a man as Mr. Sewell.

Lloyd's, Dec. 10.

R. B.

PLACER MINING IN CALIFORNIA.

SIR,—The rainy season has already set in, and everywhere is heard the hissing and screeching of hydraulics and the roaring of water as it falls, cascade-like, over the high banks of gravel. Our gold here is not very coarse, seldom finding pieces that weigh over 1 oz., and some as fine as the finest flour, which is saved by using a liberal supply of quicksilver. Gold is by no means, when in its native purity, like what is seen in our watch-cases and rings, but a dull heavy-looking metal that often looks, when in a gold-pan, more like a pile of rust such as is used by engineers for making joints in steam pipes than gold in its virgin purity; and some of it is so thoroughly coated with iron that we are obliged to rub it against some hard substance to find out the difference, and will pass through quicksilver without getting coated. But our fine gold is bright, and will easily amalgamate, and before being sent to the mint or sold, is retorted; the quicksilver is saved, and used again.

Weaver Ville, California, Nov. 17.

CHARLES HARVEY.

NEW QUEBRADA COMPANY.

SIR,—The letter of "An Old Shareholder" in the Journal of Nov. 17, its emphatic contradiction by the Chairman of the company in his notice to the Stock Exchange, his own contradiction of that notice, and the letter of "A Young Shareholder," in the Supplement to last week's Journal tempt me to ask my fellow-shareholders how long they intend to suffer this dubious state of things to continue. The directors when publishing news of a discouraging nature do so without a word of explanation, thus producing the worst possible effect; and this they do on the plea of great ingenuousness, saying they keep no secrets from the shareholders, but when good news comes (as appears now to be the case) we hear nothing of it from them, and when it comes out through other sources they exhibit (as is shown by the Chairman's notice) great annoyance and fretfulness. Now, this is very strange, for we suppose that our interests are theirs also, and that they should be glad to have any opportunity to communicate better intelligence; but this does not appear to be the case, and why it is not demands a strict enquiry, for this procedure causes great distrust, and keeps the value of the shares so much depressed that the least unfavourable rumour brings them down to ruinous prices, when shareholders (probably those at a distance, or not privately informed) get alarmed, and sell to their own loss and the profit of a few knowing ones. Now, it is most unfair that this should continue, and (as is the practice of other companies) the shareholders should insist upon the publication every month on receipt of the letters of an abstract of them, whether the news be much or little, favourable or otherwise, with any other intelligence affecting their interests, so that everything may be above board, and all have equal information. The value of the shares would then be neither much below nor much above their real value, and not as at present fluctuating, as if no one could tell whether they are worthless or valuable.

If "An Old Shareholder" would publish his name and address I, and I am sure many others, would be glad to consult with him as to the best means of getting matters put into a more satisfactory state. I have a good many shares, and even during all the gloomy times through which we have passed have sold none, having never lost confidence in the ultimate prosperity of the affair, and now think the prospects are good, and that in a few months more we shall begin to see the fruits of our patience, the reforms in management of the mines said to be on the tapis being carried out, a rich quality of ore coming home, poor ores being reduced to regulus, and middling ores dressed, assayed, and picked, as should have been done from the first. But even supposing that all these things are now being got into order, and that the shareholders are disposed to allow the directors a further opportunity to retrieve their past inconceivable series of misfortunes, we must insist on having authentic truthful information to rescue the concern from being, as it is at present, the sport and shuttlecock of the Stock Exchange.

Dec. 12.

A PATIENT SHAREHOLDER.

TOLIMA MINING COMPANY.

SIR,—Will you kindly give space in next week's Journal to a few remarks I wish to make on the management of the Tolima Mining Company, in the hope that some influential shareholder will look into the matter? The company was started in 1871, and paid two or more dividends of 10 per cent. on the A shares. Also one on the B shares of 5 per cent., this before the returns were realised, and as a result none have been paid since. In the balance sheets the dividends appear in suspense, not so the directors' fees, and I submit that if shareholders are kept in suspense so also should be the directors. The reports for the last three years all promise a large increase in the next year's returns. So far the promises are unfulfilled. I would also point out that Mr. Welton, a part vendor, has been part manager—not always a good thing. Also that the balance-sheet for 1876 shows arrears on calls amounting to 41211, and that for 1877 shows a sum of 6652 still outstanding. On these sums interest is chargeable at 10 per cent. Why is not this enforced? It is a hardship upon those who have paid, or been compelled to pay, that others should be let off.

A SMALL HOLDER.

HUNTER CONSOLIDATED MINING COMPANY.

SIR,—These young and already flourishing mines have established their reputation as a success, as predicted by Mr. J. J. Dunne, their founder. They are situated in Nevada, about 65 miles south-east of the Richmond Consolidated, and 45 miles east of the Eberhardt, two of the best known silver mines owned by English companies. The company was only incorporated so recently as February last, and active operations were at once commenced under the supervision of a local directorate. The readers of the Journal will, no doubt, have noticed the regular weekly reports and returns from the mines, the steady progress made in their development, and although the operations at present have only been carried out at two of the mines—Crown Point and Vulcan—they are now raising over 20 tons of ore, and turning out 3 tons of bullion daily; large profits are already being realised, and the mines will, it is expected, very shortly enter the Dividend List. When operations commence on the other three mines—Copperhead, Footman, and Ironclad, all of which have been proved equally rich in ore deposits, it may reasonably be expected that the returns will be proportionally increased, if only to the extent of 30 tons per day, according to Mr. James M. Day's estimate, would leave a daily profit of \$1452, or roundly, 2900%, being at the rate of 60,000% per annum. This estimate of Mr. Day's is rapidly being fulfilled, and there can be no reasonable doubt that, judging from the present daily return of 20 tons, his estimate will be exceeded than otherwise.

Crown Point and Vulcan are both opening out splendidly, the ores are exceedingly rich in silver and lead, more so, in fact, than the Richmond ores, as proved by assay from time to time. The present returns exceed those of the Richmond Company when first established, and it is a remarkable coincidence that Mr. J. J. Dunne was the first promoter of the Richmond Mine, and sold by him for the sum of 60,000%, and a new company was afterwards formed at a cost exceeding 200,000%. It is the expressed opinion of Mr. Dunne that the Hunter Consolidated will prove a second Richmond. In a letter dated Feb. 27 he states:—"I have carefully examined the mines and facilities for working, and can recommend the property

as being the best thing I have met with for years. The mines have been opened, as far as practicable, without machinery. The erection of furnaces, with the work already done, will make the property a dividend-paying concern in four months time. I feel no hesitation in saying that the property will pay from 20 to 25 per cent. per annum." This result will, no doubt, be fully realised.

London, Dec. 10.

A SHAREHOLDER.

THE THARSIS SILVER PROCESS.

SIR,—Glue is a very useful article in carpentry, in veneering, and is particularly useful; even in settling or fining wines it has from time immemorial been useful in shortening the time required to clarify them. It has long been used in the clarifying of alum, and to come nearer to the point of sulphates of copper liquors, Mr. Mayer, the assistant chemist of the Tharsis Company, now considers he has discovered a new nitrogenous compound, the composition of which, however, he does not define, and which has the property of separating silver from copper liquors. This is the great Tharsis discovery. How can it be compared in utility and cheapness with the Chadwick and Jardine process now, we believe, being successfully worked? This process simply requires the dilution of the liquors, the addition of a very small quantity of brown acetate of lead, subsequent cooling, the cost for labour being a mere bagatelle, and Tharsis Company spend 70000% a year on the management of their concern, and this discovery is the first outcome of ten years' incubation. Since Mr. Henderson left they have been completely barren of improvements. It is to be hoped that this wonderful discovery of the use of glue as a recoverer of silver will help to cement them closer together, but, being a shareholder, I fail to see how it is to increase our dividends.

ARGENTUM.

TRIAL OF ROCK-DRILLING MACHINERY.

SIR,—The correspondence on the subject in last week's Journal is somewhat animated. "A Shallow Shaft" and Mr. Waddington hit hard, but not harder, perhaps, than is deserved. We reiterate that we do not put these show trials as proof positive of the merits of a drill, but still if a machine will not work at these trials it surely shows some inherent defect in construction or principle, and we stand by our offer to place one of our machines in any mine for a trial for a month against any other machine; and if Messrs. Loam and Sons are so confident about the qualities of the Barrow, they with their great influence in Cornwall will soon be able to make arrangements for such a trial if they are wishful to prove the merits of their drills. "Nemo" also makes some remarks, and suggests reasons why the Barrow did not succeed, but as they had their best drill runner from the mine the suggestions do not stand for much. We agree with him it was a pity the Darlington was not there, and further also that the Brydon and Davidson and the Roan-head were not tried.

Your report of the trial of the drills for Derwent Mines at Messrs. Clayton, Son, and Howlett, gives the Dunn a very high reputation. We should not have mentioned this matter had not the name of the Ingersoll been brought into it. Now, the writer was present on the Monday, and the facts of the case are as follows:—Drill on tripod 3 in. cylinder, bored 10½ in. in 4½ minutes in an old millstone, and on being put to bore a second hole it would not work. It was removed again and failed to operate, and was then removed from the tripod and tried on an upright stand for tunnel driving; and, after working a minute or two, again refused work, and was given up as hopeless. The larger machine on upright stand worked some three minutes, and was then stopped for the above trial of the small machine, after which it again worked 2½ minutes in the same hole, which, on being measured, gave about ½ inch per minute. The proprietors of the Barrow Hill, your report says, give a preference to the Dunn drill over the Ingersoll. Will Mr. Dunn or Mr. Attwood tell us why the said proprietors give this preference, and for what the preference is given, as we hear no particulars? May we consider that they have an interest in the fortunes of the Dunn Drill Company? It is also stated that at a contest in Belgium the Dunn beat English, French, Swiss, Dutch, and German. Will they publish their testimonials as a warranty for this statement? At the first trial our drill did not compete, but we have a very different version of the success. At the second trial our drill did compete, and was considered the best to a considerable extent; and, as proof of this, we have supplied seven large drills to the quarries where the trial took place. Knowing, as we do, that you are desirous that the best drill should come to the fore, we ask you to insert this long letter in your valuable Journal.

LE GROS, MAYNE, LEAVER, AND CO.
Queen Victoria-street, Dec. 13.

ROCK-BORING MACHINERY.

SIR,—The letter of a "Cautious Man" in last week's Journal questions some points in your report of experiments with the hand-power rock-drill, and requests that either the inventor or anyone else who can do so may reply to his objections. I quite agree with this writer that a full and fair discussion of the merits of any new machine for this purpose is desirable, and am, therefore, ready at all times to give the best information I have on the subject to all enquirers.

1.—The report says—"This machine affords a ready and convenient means of drilling." But your correspondent thinks this statement is contradicted by a later reference to an attempt to drill horizontal holes, which failed from inefficient means of fixing. I was not present at the trial reported, but I learn from those who were, and from the reports in other journals, that the stone shifted from the force of blows, and I cannot see how this accident, which could not happen when working in a level, in any way contradicts the fact that the machine affords a ready and convenient means of drilling rocks.

2.—"Two men are able to maintain a fairly uniform speed of 150 to 185 strokes per minute with a machine to give a blow of 100 lbs." This I declare to be the fact, and I shall be happy to prove it to a "Cautious Man" and his friends by appointment. Of course the men cannot go on for more than five or six minutes without intermission; hence I advise that three men be a gang for driving one machine, so that by changing all men have regular periods of rest. In order to prove that we have no pretensions to having produced a magical machine I must trouble your correspondent to go through a very simple calculation tending to prove that the statements of your report are far within the range of possibility. We will take as our data the outside statement of 185 blows per minute, and 100 lbs. as the force of blow or main weight lifted. A very few figures will show that the journey per minute is 61-66 ft., and this multiplied by 100 lbs., gives 6166 lbs. feet, which is less than one-fifth of a horse-power, so that by the usual practice of taking five men as the equivalent of a horse-power, one man ought to be able to do the work, and we find that one strong man can do the work for one minute, but this is over-taxing his strength, and he could not continue the work, whereas if two men employed with the provision of periodical rest above named the work may be carried on continuously.

Stopping to scrape out holes is a process we have not found requisite, because by using a sufficient supply of water and the rapid pumping action of the drill, the hole is always kept sufficiently clear of waste, and when the drill requires sharpening we do not move the machine, but simply take the dull tool out of the drill bar and replace it with a sharp one.

3.—Whenever the 8-tools are found objectionable, we use a bit of any other form more suitable for the rock, but we think your correspondent exaggerates the difficulty of making the tool we prefer.

4.—Messrs. Loam's statement that there is nothing extraordinary in drilling a hole 3 in. deep in granite in one minute was made in reference to power drills, and is certainly correct, because these power drills use steam-power which at the least is sufficient to generate three-horse power, and if there is anything extraordinary in our work it is not that we made a hole 3 in. deep in one minute, but that we can go on for several minutes at that rate with the power of two men. We do not, of course, pretend to drill as fast as the best power drills, some of which use five or six horse-power.

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Nor do we think that our drill will supersede them, but there are hundreds of cases in which they cannot be used, and it is no doubt becoming a matter for mature consideration which system is best adapted to each particular case.

5.—The difference between the rate of drilling vertical and horizontal holes is reported to be about 15 per cent., but a "Cautious Man" calculates that this is an error, and he arrives at the conclusion that the difference in favour of vertical holes would be much greater, but he does not give us his reasons for thinking so. On the contrary, I think it probable that the difference reported is too great, and my reason for thinking so is that the dead weight of the drill bar and parts moving with it forms but a very insignificant part of the force of the blow. The blow given to the rock is due to the projectile force of the compressed air in the cylinder throwing the piston forward as a shot from an air-gun, and this force is clearly the same in whatever position the cylinder is placed, and therefore we only lose the gravity of the rod and its appendages by changing the direction from the vertical to the horizontal position, and the men are relieved from the necessity of lifting the weight of said rod through 60 ft. per minute. Why, therefore, should we anticipate a greater difference than 15 per cent. between the two positions, or rather as I am inclined to say, why may we not anticipate a much closer approximation to the same rate than is reported?

Tunbridge Wells, Dec. 12.

T. B. JORDAN.

HAND POWER ROCK DRILL.

Sir,—Your correspondent "H. J. C." whose letter appeared in last week's Journal, admits most of the advantages claimed for this machine, but thinks it not so applicable for underground as for open work. It is evident he cannot have seen the form of machine we are now supplying for headings, &c., which is capable of drilling holes, parallel or otherwise, to the side walls of a level, and within 6 in. of it, which is close enough for marginal holes; this is done by simply removing one of the driving wheels (the work of a minute), the two men working the machine from one side, and holes can be drilled at any required angle in the horizontal or vertical plane by easy adjustments of the machine. A certain amount of fact is always required in using boring machines underground, however well adapted they may be to the work in hand, and in practice holes may sometimes be required in such positions that the old method could be employed to as great, if not better, advantage; in such cases this is readily resorted to, but since our machine with two unskilled workmen can put down the usual and majority of holes in one third the time occupied by the old process, and thereby materially increase the rate of driving without extra cost of working and but trifling outlay, we anticipate our machine will continue to receive the serious attention of those interested in mining as well as quarrying.

Metropolitan Buildings, Dec. 11.

ROCK-DRILLS.

Sir,—The correspondence under this heading, though it may make some smile, cannot but make the judicious grieve. Because the Barrow drill failed to work at South Roskear, advantage is taken of this circumstance by the patentees of another drill to rush into print and to declare their "ability to do more work at less cost for repairs and with less power than any other drill," but they take care, although their drills are boasting said to be known throughout the world, to give no particulars relating to the cost of maintaining or running their drills. Verily, because the tappit drill did its work no better than an ordinary drill, the patentees appear to reel with excitement. Well, self-praise is no recommendation. Thus, your able correspondent—Mr. Waddington—is particularly hard on the Barrow drill. Now, let the drill be judged fairly on its merits. It did good work at Dolcoath at a time when the county swarmed with un-believers in these machines, and when barbarians were not converted by the gospel taught by "Apostle" Waddington. "Shallow Shaft" must needs also hit the Barrow drill, although the object of this writer is apparently rather to drill a hole, whereby he may spring a mine and blow up fussy mine directors and scribbling cackling secretaries.

"Nemo" is more kindly disposed towards the poor Barrow, and takes the drill under his protection. In the article on the Dunn drill the perfect Ingersoll is even, alas, vanquished by the marvelous power, simplicity, and efficiency of the former. Its pressure of 35 lbs. of air is stated to have bored 14-inch hole at the rate of 12 feet an hour. By the same factitious mode of estimating results drills of even less power exist which will bore 30 feet per hour. Lastly, we are requested to be thankful to the Derwent directors for their efforts to further the introduction of a more speedy and economical method of working our mines, and to rejoice and be glad that our friend Mr. Murchison is reforming our mining practices. For such excellent, able, and disinterested friends the mining community should at once resolve to subscribe a testimonial, not grudgingly, but as they have received so ought they to give.

DELTA.

AIR-COMPRESSING MACHINERY.

Sir,—In the Supplement to last week's Journal we perceive a letter from "A. H.," dated Dec. 5. With your kind permission we hereby beg to ask "A. H." to appoint a day for himself and any friends he may wish to bring with him, when he or they will see in practice what cannot be explained theoretically. They will have an opportunity of witnessing numerous trials at different pressures and speeds, as also the test "A. H." proposes—to have three rock drills driven by compressed air and steam. As to the result of this test we beg to differ from "A. H." for, from a long and extensive experience, we find that at least one-third more work can be done by air compressed by our machine than by steam direct, and, further, where steam has to be conveyed any distance it is totally inapplicable to rock-drills. As practice is before theory, we invite and hope "A. H." and all others sceptical on the subject will come and see for themselves. A day's notice will always ensure everything being in readiness for action at the works, so that no valuable time will be wasted in seeing what must be highly interesting and satisfactory to all.—Charing Cross, Dec. 11.

HATHORN AND CO.

HATHORN AND CO.'S PATENT RELIANCE AIR COMPRESSOR.

Sir,—Seeing in last week's Journal a letter signed "A. H.," in which some doubt is thrown on the reports which from time to time have appeared in the Journal concerning this compressor, I am informed on very good authority that Prof. Vincent has had an opportunity of seeing and practically testing its capabilities, and as no one will for a moment doubt Prof. Vincent's world-renowned authority in such matters, he will be conferring on the mining community at large a very great favour, indeed, by giving in the columns of the Journal his opinions respecting this, to all appearance, valuable piece of machinery.—London, Dec. 12.

S. E. J.

SYPHON PUMPING MACHINERY.

Sir,—In one of the *Mining Journals*, dated nearly 25 years ago, I saw an illustrated description of a syphon system of raising water from mines, the essential feature of which seemed to be that a rather complicated series of circular valves were used at certain distances from each other, but I could not, upon the most careful reading, discover by what means the water was to be brought up, as it appeared to me that upon the completion of the first stroke the whole of the water would stand in one undivided column, and as this would be 50 or 60 fms. in length, it seems to me beyond question that not only would no water be raised but there would be a good chance of the pipes being burst by the downward pressure of the water.

The illustration, however, set me thinking; and there is one point upon which I should like to ask the opinion of your more scientific readers. Is it possible to divide a column of water so as to equalise or, as it were, lessen its weight? What I mean is this. Suppose we have a column of water 60 fms. high in a tube 3 in. diameter, we know that a pump at the top of the tube would be powerless, or at least it could do no more than lower the surface about 5 fathoms even under the most favourable circumstances of the column being

balanced by making it one of a pair contained in a U-shaped tube. But supposing the 60-fm. column, instead of being straight, were divided at every 5 fms. by an α -junction, would the pump then raise the water, as each 5-fm. column would have, as it were, something to stand on? If it would not I should like to know the cause, and also whether a pump of the same power placed at the bottom of the column would have any better effect. If the weight of the column can be by any means divided the advantage would be enormous.—Redruth, Dec. 10.

MINER.

THE NICKEL MONOPOLY.

Sir,—Knowing the readiness with which the columns of the *Mining Journal* are open for ventilating any subject about which there is cause of complaint, I do not hesitate to ask that some publicity be given to the secret manner in which the trade in nickel, and nickel ores, is carried on, with the hope that it may lead to the opening of the market, and thus indirectly benefit both consumers and miners. The metallurgy of nickel is scarcely more difficult and costly than that of tin, so that the nickel contained in a ton of ore, assuming the produce to average 2 1/2 per cent. (some of it goes as high as 14 per cent., and in that case the cost of extraction would be no more, so that the profit on the metal would be greater) for nickel would not exceed 17. Now, 40 tons of such ore would yield a ton of nickel metal, the value of which, at 5s. per lb., the present quotation, would be 560*l*. Allowing the smelters cent. per cent. for profit they ought to pay 480*l*. for the nickel in the ore, this would give 12*l*. per ton for the ore of 2 1/2 per cent. produce. Now, I am interested in a mine which produces ore of nearly 3 1/2 per cent. of nickel in one kind of ore, and nearly 13 per cent. in the other, and I am told that the former is worth only 3*l*. per ton and the latter 30*l*., while I should have expected for the latter at least 60*l*. per ton, allowing the smelters cent. per cent. as before.

Why cannot some energetic metallurgist start a reduction works and smelt for the miners, returning the nickel in kind, as it was proposed a few weeks since to do with copper? At present the monopoly is almost entirely in the hands of Messrs. Evans and Askin, of Birmingham, and Messrs. Vivian, of Swansea, but I think that if a miners' smelt were started the miners could be given more for their ore, and the nickel could be offered in the market at half its present price, which would cause a much greater demand for it. Here is a business requiring very little money to start it, and one which would yield enormous profits to—

CAPITALISTS.

City, Dec. 11.

"MINERS' RIGHTS"—MR. ALEX. MACDONALD, M.P.

Sir,—In the Journal of Dec. 1, under the heading of "Miners' Rights," I see it stated that "the Lundhill miners were acting under my advice when they agreed to curtail their output in order to get an advance of wages." The statement that they were doing so is untrue; I did not know of the men being out, or that they had any difficulty with their employers. If I had been their adviser I should have counselled the termination of all contracts before taking such a step. Unless you find the circulation of falsehood and mis-statements profitable and pleasant to you, I would ask you to give this a place in your next issue. I observe that the Journal of the 8th inst. contains no less than three false statements regarding myself.

Wellthall, N.B., Dec. 10.

ALEXANDER MACDONALD.

THE DISCOVERY OF LEAD ORE AT RHAYADER.

Sir,—I have read the letters of R. Williams and A. Evans with much interest as to the above alleged great discovery, and have made enquiries respecting it, and my Welsh correspondent assures me that there has no such discovery as 400 yards long of lead been made in the neighbourhood of Rhayader anywhere at surface nor underground. That there are several very fine lodes to be seen in that district, and that he believes it to be one which has a great future in store in lead mining. The general stratification of the district is the transition clay-slate, with occasional dykes of mountain grit of a basaltic character. I am informed that a very skillful miner, named Conway, did some time ago actually make a very rich discovery of lead ore near Nant-y-Car, in the neighbourhood of Rhayader. Mr. Morris Lewis has also cut into very rich ore in driving a level into the mountain on the course of the lode at Cwmbach, near Rhayader. Mr. David Price, of the Cefn Hafod and South Dylife Lead Mine, I understand has made a recent very rich discovery of lead and copper ores, on another property at surface, and I am assured that these are the only recent discoveries made, and that they are really very good; and I am further assured that the 200 fms. of lead ore which appeared in the Journal last week is all a myth, or comparatively so.—Dalston, Dec. 12.

E. HARVEY.

PATELEY BRIDGE MINES.

Sir,—About twelve months ago I visited these mines, and then pronounced them to be what they are now likely to prove—a most valuable property. The mines are under the able management of Capt. Charles Williams, a man of long and practical experience. Some remarks he made to me on my first visit to the mines have borne out by the productive nature of the veins; one more especially, called Greenhow Rake vein, is now very productive. It is 8 feet wide in the 30 fm. level. Last month 40 tons of lead ore was got out of this level, giving 65 of lead, or equal to 30 tons of pig-lead. Another, called the Sun vein, is also very productive, and likely from present prospects and appearances to turn out even better than the Greenhow Rake vein, which, after paying all the month's expense, Capt. C. Williams told me left a clear profit of 200*l*. to the shareholders. If the Sun vein is pushed on with some spirit I have no doubt the shareholders will soon benefit by it. Several other veins are running south of this, all ore bearing. The lead is smelted on the premises, and I noticed between 30 and 40 tons of pig-lead ready for the market. Smelting the lead on the premises must be a great saving to the shareholders, and this, too, under the management of such a man as Capt. Charles Williams, in whom the shareholders may confide. I may say that I am no shareholder in these mines, nor am I in any way connected with them, but so many bubble companies being got up, which prove ruinous to thousands who can ill afford to lose their money, I think it but fair to say that I believe these mines from present appearance will turn out a valuable property.

AN OCCASIONAL CORRESPONDENT.

DARK PROCEEDINGS.

Sir,—Those who contend that Mr. Heard has done harm to Cornish mining by his endeavours to induce pursers to do their duty are either ignorant of the value of truth, or so content from selfish motives merely to please those who are in power. All men of common sense and honesty, if they will only speak their mind, would say the conduct of the pursers of West Basset, Tincroft, and Carn Brea was wrong in concealing from the adventurers the real balances against the companies, and by presenting to them and publishing fictitious accounts, representing the balances against the companies to be a few hundreds of pounds when they were (in each case) between 20,000*l*. and 30,000*l*., thus keeping the adventurers in the dark as to their liabilities. A man who will seriously attempt to justify such cooked accounts cannot be far from the condition of a fool, or something worse. Injury to mining is not done by straightforward and open conduct such as that advocated by Mr. Heard, but by "hole and corner" proceedings such as those adopted at the mines mentioned. Had the pursers of those mines been poor men, the revelations resulting from Mr. Heard's motions would have ended in dismissal from their positions, but, being men of substance, their bad conduct was passed over with brief remarks. Poor pursers, unauthorised by their principals could not have drawn so largely on the bank as was done by the committee at West Basset and by Capt. Teague at Tincroft and Carn Brea. As regards Tincroft, the pursers were in the practice not only of issuing fictitious accounts, but of declaring dividends of profit when four or five months' cost were unchanged, and which, if charged, would have shown that there was no profit to divide. Mr. Heard's perseverance in demanding the bankers' pass-book at West Basset a few months ago has led to a correction of the evils referred to, both there and at Tincroft, Carn

Brea, and Dolcoath, where at present the accounts are brought up as close to the account days as possible, and proper balance-sheets produced to the shareholders. At West Basset meeting, yesterday, the balance-sheet was perfectly satisfactory in this respect, and the books were open for the inspection of the shareholders an hour before the time named for the meeting. Why this was objected to at Carn Brea I cannot say, but it should be insisted on in future by the shareholders in all mines.

X. Y. Z.

VALE OF CONWAY LEAD MINES.

Sir,—Nothing can be more cheering to an examiner of mines, and who has given his unbiased opinion on a piece of mineral-bearing ground, to find that after the short space of nine months actual mining that piece of mineral ground is likely to turn up a trump. Such will prove to be the case I think with the Vale of Conway Lead Mines under the able and energetic management of Capt. John Roberts. Since my first visit to these mines I have read with considerable interest all letters which have from time to time been published in your valuable Journal relating to them, and a few days ago I paid another visit of inspection both at surface and underground, and must say I spent a most interesting day in company with the company's local manager. We first had a thorough look at the surface work, and I say from practical experience the water-wheel and crusher erected on the mine to work some self-acting jiggers are sent from the foundry (Sandycroft, near Chester) in splendid style, every part working as steadily as clockwork. The jiggers are a first-class invention for simplicity, effectiveness, and cheapness, are the best I have ever seen, and I have had something to do with nearly all the patented machinery for the cleaning of the various minerals yet brought into the market. The ore floors are being laid out well for the returning of large quantities of lead, which reflects great credit on the resident manager.

As to the internal part of these mines I will quote my own words again, fearless of contradiction—"The company possess a mine of great promise," and I predict great results will be achieved in the year 1878. I have formed this conclusion after a careful study of the character of the lode and rock in the Llanrwst district. It should be borne in mind also the facilities for opening out these mine on a large scale are very great, no machinery being required for pumping or winding, but operations are being carried on by starting galleries from the side of the mountain, and I feel convinced the day is not far distant when we shall be apprised of a large quantity of lead stuff being broken from some surface stope not yet wrought on.

I would say a word to the directors before I close this letter—Pursue the same policy as you have hitherto carried out whilst you have a thoroughly honest, practical, and intelligent man as your manager at the helm; by no means allow anyone who may be troubled with *cavoches scribendi* to bind him down by pickering and hawking, which is all to no purpose, and nothing discourages a mine manager more, who is supposed to be responsible to a body of shareholders for the proper working of the mine than to be told to do this and do that, when there are no possible means of doing all this or all that. Such tampering by parties who cannot be expected to know what is right or wrong in the carrying on the working of a mine, yet full of conceit. After all it is *ex nihilo nihil fit*, and as you are aware Mr. Editor a fool may ask a question which will puzzle a wise man to answer, and he is generally careful after he has answered one question to see how the next will be answered.

NUNQUAM NON PARATUS.

WHEEL GRENVILLE, AND ITS MANAGEMENT.

Sir,—A general meeting is convened for the 21st inst., and the partial statement of accounts accompanying the notice of meeting causes me great astonishment and dismay. Notwithstanding the large amount received for forfeited shares, and taking credit for the un-old shares at 3*l*. each, it is evident that when the usual complete statement of accounts is laid before the shareholders it will show a serious adverse balance. How long is this unsatisfactory state of things to last, and is it not time that the affairs and prospects of the mine were thoroughly investigated? The mine and its management have been the subject of much correspondence in the Journal, and it is all very well for the Chairman to tell us in a burst of virtuous indignation that anonymous correspondents are contemptible; there is every evidence that those correspondents were correct. We were told that the mine was mis-managed by the former agents, and were promised a very different state of things under the new superintendence, but our progress during the two years of the latter has been marked by ever-increasing expenditure, and our affairs appear to be going from bad to worse. Are our interests entrusted to competent men? Do the prospects of the mine justify the extra cost for new machinery? I hope at the meeting the shareholders will give their position serious consideration, for something ought to be done at once. I would suggest to send Capt. A. James, of South Frances, or some other thoroughly practical man, to inspect the property, investigate the expenditure going forward, and give his views thereon in regard to the prospects of the mine, justifying it or not. I hope the shareholders will not allow themselves to be diverted from this highly necessary step by any assurances of the executive that they are perfectly satisfied that everything is in a satisfactory state, and that to show their confidence they have largely increased their stake in the mine. A man may be very sincere in certain views, adhering to them obstinately, and at a great cost of money to himself, but his ideas may, nevertheless, be wrong, and I cannot help thinking that the position of Wheel Grenville should at once be arrived at by a more solid test than that of the opinion and judgment of the executive, who thus far have not performed that which they almost guaranteed to us on their taking office.

A short time since I paid a visit into Cornwall, and whilst there I had a long chat with one of the old management whom I have known for some years. He said, "Mr. ——— you will naturally consider my statements prejudiced ones, and to a certain extent they are so; could you expect otherwise when you consider how we were treated, and what was said of our management, and the unfounded charges which were brought against us? And what is it all come to Mr. ———, and what will it end in? The new parties have not discovered an ounce of tin more than we did, and for the past eighteen months have been taking away ore ground we laid open. We were accused of laying out too much money on surface operations. Look at what the present party are doing in this respect? They have done little else from the first day they took the management. In a little more than two years we opened 150 fms. of ground upon the flat lode. What have the present parties opened? They have called upon the adventurers for nearly 20,000*l*., and the prospects of the mine are not so good as when we left it. And we were called extravagant and incompetent managers, and the adventurers were told that the mine would never make any favourable progress until we were discharged, and so we were turned off with slurs upon our character. We had been years in the service of the company, we knew the mine, and it was our duty and advantage to study the interest of the adventurers. Not an agent who came to inspect ever found fault with the way we were working the mine, and we never asked another man's advice what to do, but acted on our own judgment. But what did the present party do last winter? A little extra water drove them out of their wits, and they called in four or five other agents to tell them what to do. And what is the result, Mr. ———? Why an outlay which we would never have recommended, and which is downright folly. The erection of an 80-in. engine was advised and decided upon, and to place it at the north shaft close on to the boundary. If we had advised such a thing we should have considered ourselves unfit to be managers. If the prospects of the mine warranted such an outlay, that north shaft is the last place at which we should have thought to put an engine. But the prospects of the mine never warranted such an outlay at the present price of tin, and the adventurers will find out before long that we were not the bad managers we were said to be. When we left the mine there was a fair chance of doing a little good on the flat lode, but the present party somehow could not see it, and have lost it by the costly outlay for new machinery.

This is much as I was told—I have omitted many remarks for

obvious reasons. I saw the speaker had some little feeling in the matter, and at which I did not much wonder. I am, however, disposed to place much faith in his views and judgment, and am decidedly of opinion that before the erection of the extra plant is further proceeded with it would be advisable to take some other opinion as to the position and prospects of the mine. I think it would be impolitic to rely solely upon the views and judgment we have been guided by during the past two years. VERB. SAP.

Dec. 12.

WEST BASSET MINE.

SIR,—In the Supplement to last week's Journal I read a letter signed "A West Basset Shareholder." The writer pretends ignorance as to who Mr. Cornelius Bawden is, although he has known Mr. Bawden many years. Mr. Bawden has had repeatedly to apply to the same shareholder for calls (more than one) in arrears, notwithstanding the same pretends to be a great reformer in mining accounts. Mr. Bawden has been clerk at West Basset over 22 years, and purser of other mines, receipts and payments having passed through his hands to the extent of millions sterling. He enjoys the respect and esteem of all who know him, therefore the writer of the letter in the Journal can only by insinuation injure him in the opinions of those who have no dealings with him. I regret that I cannot say the same of your correspondent, whose moral qualities are too weak and nervous to support the weak or attack the strong. To strike what is down and not to raise and restore is his great attribute.—Dec. 12. H. WADDINGTON.

GREAT WEST VAIN MINING COMPANY.

SIR,—The difficulty of reaching so large a body of shareholders as this company consists of induces me to trespass on your courtesy for space in the columns of your valuable Journal. It is time that the general body of the shareholders took the affairs of the company into their own hands, it being clear, from the late circulars issued by the self-elected liquidators, that the directors intend, if possible, to smother up all past transactions, doubtless because those transactions will not bear investigation. Myself and friends are not so disposed; nor can we afford to throw away thousands of pounds without even getting an account of how the capital has been spent. It will be remembered that in the first two years dividends were paid; but it is now certain that no profits have been made, and the dividends were consequently paid out of capital. For the result of this most ruinous proceeding the directors should be made responsible, especially as the promoters of the company had the largest share of the money. The fact is the entire proceedings from the promotion of the company have been of a very questionable character, calling for searching enquiry. The property being unquestionably good, what advantage can there be in forming a new company (for the third time) except to preclude investigation? No doubt shareholders would subscribe fresh capital without any reconstitution of the company if confidence could be placed in the future management; but before subscribing another shilling we should have at least a clear explanation of the past. ORIGINAL SHAREHOLDER.

SLATE QUARRIES IN CARDIGANSHIRE.

SIR,—Having had some considerable experience of slate quarries in general, and having personally inspected some five years ago the trials made in Cardiganshire—Cwmeren, Tyn-y-Garth, and others—I am enabled to say that the veins are as good and the trap-rock as favourable as any to be seen elsewhere, and if money were only laid out in Cardiganshire, under experienced practical men, the quarries there would prove fully as productive as those at Corris and elsewhere is the opinion of a—

Machymlyth, Dec. 13.

QUARRYMAN.

SLATE QUARRIES IN CARDIGANSHIRE.

SIR,—Your valued contributor from this district and North Wales, referring to my previous letter, says: "Hitherto the slate rocks in that neighbourhood have not been worked successfully." This, I must admit, is correct, but at the same time conveys a wrong impression, as the only places which I am aware of that have been tried are, Morben, Cwmeren, and Tyn-y-Garth, the former has undoubtedly hitherto proved unsuccessful, and from what cause I must admit I am unable to say. Cwmeren, now worked under the name of the Dynin Quarries, is at the present moment being developed, and from personal inspection I can say that the slates appear to me to be of good quality, and if the quarry were fully laid open I see no reason why it should not be fully as paying as any other in Corris, or elsewhere. The last I have named—Tyn-y-Garth—has been extensively laid open and large quantities of slates sold therefrom. It was abandoned, I am informed, owing to a clause in the lease, by which the lessees were bound to supply the estate with all slates required for the farm, &c., for nothing, and the demands in this respect became so great that the gentlemen working it gave it up sooner than comply with them. The freehold has, however, been lately purchased by Sir Pryse Pryse, Bart., respecting whose well-known liberality and encouragement to mining enterprise I need say nothing; he has given a grant of it to some local parties at the low royalty of 1-18th, thus the present fortunate holders step into possession of some 30000. worth of work already done for them, and I believe they are now forming a local company to work the quarry. On the whole, therefore, I think you will excuse my again troubling you, as your correspondent's remarks would convey the idea that extensive trials had been made in this county and had all failed. All I have further to say is that I have no interest in the matter, either in this county or any other.—Aberystwith, Dec. 8. X. X. X.

MINING IN CARDIGANSHIRE.

SIR,—There have during the past few months been several important discoveries of silver-lead ore in this county, which give promise of satisfactory and profitable results. The last, but not the least, is the recent discovery at the old and celebrated Esair-y-Mwyn Mine, in the western portion, which has hitherto been unworked. The discovery is about 30 fathoms from surface, and about 50 fathoms from the old. A winze now going down on the lode will yield from 4 to 5 tons of ore to the fathom, and the proprietor is now likely to be amply rewarded for his perseverance and outlay. Aberystwith, Dec. 13. GEO. GREEN.

THE LLANRWST MINE, AND ITS DETRACTORS.

SIR,—We should not have troubled you with the following had we not have received several letters from our clients and parties interested asking why we do not reply to the anonymous communications published in the last two or three Journals reflecting on the Llanrwst Mine. In a spirit of fairness to all persons concerned we hope you will insert this in your next issue.

A false and libellous circular having been published and circulated, together with anonymous letters under different names, which we believe emanate from one common source, we have instituted legal proceedings against certain parties, and under the advice of our solicitor we refrain from commenting thereon for the present. ENDEAN, FISHER, AND CO.

Lombard-court, Lombard-street, Dec. 7.

LLANRWST LEAD MINE.

SIR,—Under the above heading for the past three weeks a series of letters have appeared in the Journal. It must be evident to those of your readers who possess but the ordinary average amount of intelligence that those vituperative epistles emanate from but one source, and that they are not penned with a view to benefit the shareholders in the Llanrwst Mine; but, on the contrary, to damage their interests to the uttermost, and depreciate the value of that company's shares, by frightening timid holders into selling at a loss. Can any shareholder in Llanrwst for one moment believe that these letters, teeming with animus and misstatements, are published with the benevolent and philanthropic object of benefiting him and the property in which he has invested his money? We do not purpose at this point to discuss the merits of East and West Craven Moor at 100. We have dealt in the latter this week at 74, not by

frightening any holder out of them, but by bona fide dealing on the open market.

For the information of those shareholders who have received Mr. H. Gould Sharp and Co.'s Circular (referred to in the letters published in last week's Journal), and the libellous statements circulated therewith, wherein our names have been unwarrantably published, with no other view than to damage our business connection, we beg to say that we are advised by eminent counsel that those circulars contain libels of a grave character, and we have, through our solicitor, commenced actions against the authors thereof. Bishopgate street, Dec. 12. GREGORY, WHITAKER, AND CO.

(For remainder of Original Correspondence, see to-day's Journal.)

Meetings of Public Companies.

TOLGUS CONSOLS MINING COMPANY.

A meeting of shareholders was held at the offices of the company, Great St. Helen's, on Wednesday.—Dr. BURT in the chair.

Mr. E. J. BARTLETT (the secretary) read the notice calling the meeting.

The CHAIRMAN said the reason of the postponement of the meeting from the previous Monday was the lamented death of one of the captains of a lead mine in the office, who had been struck down by apoplexy, at the age of 47, which rendered it necessary for the secretary to go to Wales for a few days. He thought that would be a sufficient excuse for the postponement of the meeting. (Hear, hear.) He would now call upon Mr. Bartlett to read the report.

Mr. BARTLETT read the following report:—

Dec. 11.—We are now in full course of opening out the plat and cross-cut at the 40 fm. level, with the view of intersecting the lode as quickly as possible. The dip of the rock is all northward, and as we advance in the direction named we are meeting with strong streams of water coming from the joint, between the layers of rock, and the water which was previously in every direction from the engine-shaft is thus drawn away, showing, in my opinion, that the great metalliferous channel or belt of this range of mines is before us in our present driftage, and on reaching which we shall, I feel certain, obtain the same rich results there have been already met with in our eastern, by the former proprietors, and which are at present being realised by the shareholders of West Tolgus, adjoining us on the north. There is one part (which I have not previously alluded to) which seems to me to be worth observing in connection with our present operation of cross cutting north to the lode at the 40, and it is this—that it was the same level that the great course of copper ore was first intersected in East Wheel Croft (which adjoins us on the west), in North Roskear, the next mine west, and that it was at about the same depth that the first rich discoveries of copper were made in East Pool to the south of us, and near to the same cross-course which passes through our set within a few fathoms of our present engine-shaft. In fact, every analogy goes to show that the point which we are now about to develop is the one from which a grand discovery may be calculated upon. Turning from our present site to the north part of the property, we find that the old workings there, from which about 250,000 worth of copper was extracted, were extended to a depth of 118 fms. under the adit, and it is a well known fact the Carn Brea Mine, to the south of us, when resuscitated by the late Mr. Joseph Lyle were found to have been worked to about the same depth as there abandoned, and from this point down to a depth of about 100 fms. below copper and tin were met with in the greatest abundance, from which profits to the amount of a quarter of a million sterling were divided amongst the shareholders on the expenditure of a capital of 20,000. It was thought by the previous workers of the Carn Brea Mines that the depth which they had reached was the limit of the profitable production of copper and tin in the locality, but their successors proved that it was from that point downwards that the lodes commenced to yield their largest quantities of metals. This will also be found to be the case in Tolgus Consols on prosecuting the operations below the present deepest point—the 118 under the adit. The same views as to the limit of production in depth was entertained by the former workers of our eastern ground, and of the Tolgus group of mines generally, but West Tolgus is now proving in the most satisfactory manner that greater riches are to be met below the depth reached by the eastern mine than have been already found above it. I am glad to see the copper market improving. We shall again have a good price for this metal; I have seen it as low as at present several times, and afterwards 50 per cent. higher for long periods.—W. C. VIVIAN.

The CHAIRMAN said he hoped the report would prove satisfactory to the shareholders. They would remember that the last time he had the pleasure of meeting them he was in high spirits, because he had at length succeeded in inducing the manager to drive west instead of east, and he expressed his belief that by driving west towards the Setons, the Crofts, and the Roskears they could not fail to get into good ground. Therefore, they would now think that he was in better spirits, and felt great pleasure in meeting them today, because they had now made that discovery which he thought they would make, and there was a great difference between actually making a discovery and believing they would make it. If they considered the position of the present mine they would observe that there was scarcely a discovery which had been made in the county of Cornwall under such favourable circumstances, and for this reason. Supposing the company to be opening up a new piece of virgin ground, and having sunk 25 fms. below the adit, came upon a discovery of copper, everyone who knew the country in Cornwall would know that a discovery of copper under such circumstances implied great consequences, and what they would say was that they must raise money, and apply it to the sinking of a shaft. They would have to sink 15 fms. on an engine-shaft before they commenced cross cutting; but this company was in the position of having their main shaft, which was an important one, already sunk no less than 15 fathoms, and the whole of those 15 fathoms had been paid for by this company's predecessor, and this company, therefore, had the benefit of the time and money so expended. Just consider what those 15 fathoms comprised. The cross-cut when completed would give a feet of copper ore above their heads, which they could commence stopping as soon as they had driven a level—a thing almost unprecedented in the history of mining. But that was not all. There was a cross-cut to drive, which was a small matter compared with having the shaft to sink, for when they got to the bottom they could commence the cross-cut, which they could not have done for 12 months if they had the shaft to sink. Again, they had a great south lode as well as a north lode, and this great south lode, which was the same as that which ran through the Crofts and Roskears, was indicated on the western ground. They did not want to cross cut to get to it. That had also been paid for by the predecessor, and they had nothing to do but to go to the pickaxe in the southern lode, and drive ahead, and if they made a similar discovery there to that which had been made at the 25 fm. level on the north lode they would see how much more important that would be than the discovery which had been already made. They would not be then at the top of the deposit of ore, as in the one lode, but they would be in the deposit, and they would not only be able to drive the level west, as they had been doing on the north level, but as soon as the level was driven in a moderate distance there would be important stopes overhead, and he anticipated the working of the south lode would enable them to carry out operations in the ground which was now treacherous upon capital. They would require more capital, but the capital which was required now, which he hoped the shareholders would take up, would be to open up a very important point—the eastern shaft, which had not been working for 15 or 15 years. That was down to the 118 fm. level, where it was thought there was not any more ore, but both to the south and to the north in the Carn Brea and in the West Tolgus below that point they had made the best discoveries, and it seemed to him that if rich discoveries had been made north and south it must be a curious circumstance if in this mine, which was between the two, a similar discovery was not made when they got down to the same depth. If such were the case there would be a mine in Cornwall which could be said to be so favourably situated as this mine. With respect to the eastern ground he did not profess to say more than this—that such rich discoveries having been made north and south they were almost certain to come upon a rich deposit there. But he would now call their attention to the western ground. From the description which Captain Vivian had given of the course of ore, which was going from the south in the south side of the driving, a course of ore which was dipping to the north in the north side of the working, and the dip of the ore being very different, that of the north being slightly to the south, he expected that after the deposit had been pursued down a considerable number of fathoms they would find they had two lodes, which were likely to separate, and they would have two important lodes to drive upon instead of one. He thought it was very likely that when they got to the 40 fm. level, and drove north from there, they would find it had separated again into two important lodes—the middle north lode and the mid lode, which had passed through the engine shaft and dipped into the north lode, and that had been occasioned by the influence of a cross-course. In the New Brea there was a good lode, which was continued through the interesting properties up to the cross-course, and there was no doubt it would be discovered in this mine. After the great discoveries which had been made in West Tolgus, and looking at the promising condition of this company's mine, there would be no difficulty in getting people to sink a shaft from the surface; therefore, how much better ought this company to be when 118 fathoms had been already sunk, without any expense to the company. Looking at all those points, he thought this company was at the present moment in the most flattering position he had ever known a young company to be in. What the directors wanted the shareholders to do was to take up 10 shares, or a little more, so as to set them going at the eastern shaft, and continue what would not be expensive operations in the western ground. The western ground would require a little more capital to be expended upon it, and in the prospect of better times it was highly important, as soon as possible, to place machinery at the eastern shaft, and pump out the water, and sink down to the level at which the West Tolgus had made their brilliant discoveries. If that were done, and the money was actually forthcoming, he believed that trifling expense would place the mine in a magnificent position. He believed the 4000 shares mentioned in the prospectus would be sufficient to develop the mine and put it in a dividend-paying position, without any further expenditure of capital. If the prospects of the mine were not sufficient to induce people to go into mining he did not know what would be sufficient. There was no doubt whatever about the success of the mine, and ultimately if shareholders wished to come in they would have to pay a heavy premium for their shares. If the present 1000 shares were issued at par they would be the last which would be issued at par, and if they required to issue more shares it would be, as he had already said, at a premium. It really seemed as if there was greater anxiety to buy shares at 100. than at 50. per share.

Mr. E. J. BARTLETT said he felt in a happy position with regard to this company. He had been the means of inducing the shareholders to subscribe their money, in order to make the great discoveries which had been made, and which seemed likely to turn out very profitable, but the shareholders were perfectly aware that he had to make considerable sacrifices for a long time, and had advanced the company a considerable sum of money without interest. Since the company had

been formed he could not say that he had obtained a sufficient amount of capital from the public or the shareholders to enable the operations to be carried on to the greater part of the debt which this company took over from the old company, and also to satisfy the creditors, who had been very patient under all the circumstances. There was still a sum due to himself and to the merchants, but not a considerable amount. What the directors were anxious to do was to convene a meeting, not to submit any special resolution of the statements of accounts, but to take the shareholders opinion as to the best course to be adopted, not the immediate 40 cross-cut, and for working of the eastern portion of the mine, which would turn out very rich indeed. It was at first suggested that the shareholders would want the shares at a discount, but the worthy Chairman would not consent to that at all, as it would, he thought, be unfair to those who had held their shares so long. What was now proposed, and what the directors hoped their shareholders would agree to, was to raise the total capital up to 3000 shares, the shares to be issued at par, and payable by easy instalments, but not more than 1000 shares to be correct. Dr. Burt was anxious to drive west, and they had driven west, and the Chairman a greater amount of credence than could be given to the statements of chairman of some other companies.

Some further discussion ensued on unimportant points, and also with regard to the raising of more capital. On this latter point it was resolved to issue shares at par, 30s. per share to be paid on application, and 10. per share on March 1, and further amount to be called without two months' notice, or the calling of a special meeting to sanction it.

A cordial vote of thanks to the Chairman, directors, and secretary closed the proceedings.

VAN CONSOLS AND GLYN LEAD MINING COMPANIES.

The adjourned extraordinary meeting of shareholders in the Van Consols Lead Mining Company was held at the Guildhall Tavern, Gresham-street, on Wednesday.

Mr. ADAM MURRAY, F.G.S., in the chair.

The CHAIRMAN said, this meeting being an adjournment of the previous meeting, the committee had deemed it advisable that he should take the chair upon the present occasion, and he would, therefore, commence the business by making a few observations on the position of their affairs. Since the previous meeting, at which a report was presented by the captain of the mine, a great many shareholders had exhibited interest in the matter, and several of them had been and seen the mine for themselves. Everything that had been said as to the position of the mine had been fully confirmed, and since the previous meeting Mr. Thomas, the local director, had again been over both the properties, and had made some very valuable suggestions with regard to the future management of the mine. One of these suggestions was with respect to the steam-engine, and the reduction of the quantity of coal burnt, by the adoption of a turbine for driving the pumps, which would be a matter for the consideration of the new company when they visited the mines since the last meeting were extremely pleased with what he had seen, and had confirmed the report made by Capt. Roach. It had not been thought worth while to bring Capt. Roach to town again, but he had since written to him (the Chairman) verifying his previous statements, and expressing his belief that the company possesses a very excellent property. With these remarks he would call upon Mr. Stansfield to make a statement with regard to the progress of the reconstruction scheme, and as to the number of applications received for new shares should the company be re-formed.

Mr. STANSFIELD (the secretary pro tem.) said up to the present time he had received applications for 9801 of the new shares, but he might inform the shareholders that he had also received a promise for 169 shares in addition to the number which were agreed to be taken up at a meeting called by Mr. Francis at Llanidloes. He did not receive the application at present, but Mr. Thomas had that morning informed him that there was no doubt of the 169 shares being applied for, which would bring the number up to 10,030. Some of the gentlemen present might not have applied yet, and if that were so he would be very happy to receive their applications.

Mr. RICHARD JONES said he had his application ready, but he thought that what he said at the previous meeting would have to be taken for granted. He would like to know if the number of shares applied for would not be sufficient to float the new company, and subject, of course, to any legal objection which might arise?—Mr. NORRIS replied it was believed that the number (10,030 shares) would be quite sufficient to start the new company.

Mr. STANSFIELD remarked that some of the shareholders had asked that the number of preference shares in the new company should not exceed 10,000, but the number could not be restricted at present.

Mr. J. J. WYNNER (solicitor) said the legal part of the business seemed to be the turning point in the amalgamation of the two companies, and he would say at once that the scheme decided upon previously was thoroughly practicable, but it involved some amount of labour, which would have to be gone through if it should be the determination of the two bodies of shareholders to amalgamate into a new company. They had not been idle since the last meeting, but, on the contrary, Mr. Norris himself, working with the joint committees, had been very busy working in the interests of all concerned. Although they were just then only engaged with the Van Consols Company they would have to deliberate at length upon the matter of the Glyn Company, and, as upon previous occasions, it might be convenient to deal with the whole of the questions involved at once, with the kind assistance of Mr. Norris, his co-solicitor in the Glyn Company, he had obtained the opinion of Mr. J. Ingle Joyce, an eminent member of the Chancery Bar, which, without going into details, he might state was satisfactory, as it showed that the scheme decided upon to be a practical one. (Hear, hear.) There was no doubt that the carrying out of the scheme would be a matter of some labour, and that it would take time to settle everything, but it was something to know that the opinion of eminent counsel was favourable to the scheme. As this was such an unusual case he would be very glad if Mr. Richard Jones would give Mr. Norris and himself the benefit of his practical experience. He (Mr. Wynn) had stated most emphatically at the meeting at which the matter was discussed that the amalgamation would be a very difficult thing to carry through. If the ordinary share capital could have been decided upon, of course the matter would have been settled in a few days, but there was a little more to be done, and the scheme would work very beneficially to the new company. Mr. Ingle Joyce's opinion was that it was a very difficult case to deal with, but he with great ability worked out a scheme by which the amalgamation could be legally effected. Then as to the "sins of war," the costs of the liquidation, pure and simple, would be allowed by the Court, but the funds for the reconstruction of the company would have to be now provided. To give the shareholders of the company a general idea of what would have to be done, he might state that they would first have to settle the list of contributories in the Van Consols Company as quickly as possible, and settle the claims against the company also as quickly as possible, and having regard to certain duplicate shares which were in existence. The list would have to be settled before any binding course could be decided upon. But these were all matters of routine, which would have to be arranged. Then would come the provisional contract between the official liquidators of the Van Consols Company and some gentleman to act as trustee for the intended new company for the sale to that trustee of the Van Consols property, such sale to cover either its debts in full of the creditors of the present company (now supposed to be about 3500), and the costs of the liquidation, and if the creditors could be induced to give credit for the amount required. If the scheme were not carried out, judging from the position of the mining interest at the present time and his experience of forced sales, he was afraid there would not be much to divide among the shareholders. Notwithstanding what had been said that the creditors would be paid in full (and he believed they could be) it would be very much to the advantage of all concerned if they would consent to some reduction of their claims. The debts of the two companies were about 5000, and the applications already received for shares in the new company were about 10,000. He would assume that the amalgamation scheme would be speedily ratified by the Court of Chancery, not withholding all that might be said as to the law's delays. In the case of the Glyn Company it would be necessary, without any disparagement to its credit or its working, to go into a voluntary liquidation, in order that a similar contract as that of the Van Consols should be entered into with regard to the sale of the property to a trustee for the new company, and for clearing off some few legal covenants that might arise, but this would be an inexpensive matter. With respect to funds he was at present about 1500 out of pocket, and Mr. Norris was to give credit from time to time, some funds would have to be provided, as it would probably take 5000, to carry the matter through. He hoped it might be less, but after all 5000 was nothing compared to letting the whole affair fall through. He need hardly say that the interest of his own pocket was to let the liquidation proceed to the end, but his wish had always been that the affairs of both undertakings should be brought to a successful issue. He had always said that the ordinary share system was right, but he had been accused of never having advocated it. He wished the ordinary share might after all be the better course to pursue.

Mr. W. STURGEON asked how long it would probably take before the new company could be got into working order?—Mr. WYNNER replied that it could not be done in less than three months. Indeed, that would be a very short time.

Mr. COOPER said the matter of providing funds had been discussed by the joint committees, and they had themselves agreed to subscribe 1500, towards the expenses. The subscriptions would be returned out of the first call of thirty shares, and it was hoped that others of the shareholders would come forward and increase the amount of subscriptions.

Mr. NORRIS remarked that Mr. Thomas had for some time been working the Glyn Mine out of his own pocket.

Mr. WYNNER, in reply to Mr. Pryse, said Mr. Norris and himself spent five hours with counsel in deciding upon the steps which it would be necessary to take to bring about the amalgamation. He (Mr. Wynn) then read a letter from Mr. Wilson, the temporary liquidator, urging that the shareholders should decide in work some course, as he had been since July finding money to keep the mine in work and the engines, &c., clean. He (Mr. Wynn) further remarked that if the sanction of the Court were obtained to the proposed amalgamation an official liquidator would at once be appointed.

Mr. HARRIS remarked that the lead sold by the liquidator since he had had charge of the Van Consols Mine had realised about 80, and Mr. Thomas said the Glyn Mine was at the present time about half paying its expenses.

The CHAIRMAN, in the course of some further conversation, said it was believed that in Glyn, as they worked westward, they would get into much richer ground than they had hitherto been able to discover. Various suggestions were made as to providing the necessary funds to carry the matter through, but ultimately the subscriptions of the committee—1500—were raised by five or six of the shareholders to 3000.

Mr. W. STURGEON then moved, "That the committee be requested to continue their labours to carry out the amalgamation scheme."—Mr. DEPUTY SECRETARY seconded the motion, which was carried unanimously.

Mr. STURGEON moved, "That the money subscribed at this meeting, or subsequently, be placed in the hands of the joint secretaries under the supervision of

one of the best proofs I can give you of his dealing with us. I have experienced in another transaction besides this his liberal spirit in dealing, so I will not give a solitary instance to me. On that freehold is one of our shafts, and I think that shaft there are at the present moment tributaries at work, which is, of course

report of Mr. Mackinnon, one of the directors, who had taken the mine. Mr. W. W. MACKINNON, Q.C., said he had not a copy of the report with him, nor was there one in the office just at the moment, but he should be happy to state in a few words what he had seen of the property. He commenced at the bottom of the road near Holway at the adit; of course he could not do more than look into it. He there saw the water coming out; he did not see the canoes, still existing, which used to come down bringing the lead, nor was this a practice which the present company would adopt. He saw Captain Kemp, who had been through the place, and put him through a system of cross-examination at every point they arrived at. Mr. Parry, had kept all the machinery in capital order, with the view of making it valuable for sale, and the state of the shafts, and the other shafts, which had not an engine, the other shafts had everything perfect. The machinery, boilers, and everything were of the most superior character, and, therefore, for years to come there would not be much necessity to spend money purchasing machinery, and so on. He believed his report had this value—that it was his unbiased judgement, and it was from what he saw on the spot that he was induced to join this mine. He referred to the advantageous position of the mine with regard to the railway, the lead, the water, and the ore, and he scarcely had a doubt, nor through this company's property. Independently of that there were other lodes on the Holway property. He did not find anything exag-

A SHAREHOLDER asked if the Dominion exacted a royalty?—THE CHAIRMAN said the association had to pay 10 cents a ton to the Government of Nova Scotia, and after a certain amount that duty was somewhat reduced. If there should be a monetary restriction on the coal duty in the United States it would, of course, give a start to the provincial coal industry, and the Dominion would be its neighbours and competitors, would derive the benefit of any change. He believed they were now in as good a position to supply any demand as they ever were. They had the Queen Pit, which could be reworked at any time if the demand should exceed the supply. As the shareholders were aware, they possessed large areas of unworked ground, but in the present state of affairs the directors had not much hope of being able to effect any arrangement for the sale of them. They had endeavoured to do so at various occasions, but at present no success had attended their efforts. With respect to the Springfield property, and although some

correspondence had been carried on with respect to the sale of the Lingan Mine, nothing had been decided upon, and he was afraid that the negotiations would not end in the disposal of the property. In conclusion, the Chairman said he had no objection to submit, but he would be very happy to answer any questions.

An informal discussion then ensued, and the CHAIRMAN replied to a few unimportant questions.

On the motion of Mr. RUDING, seconded by Mr. WORSLEY, a vote of thanks was passed to the Chairman and directors, and the proceedings then terminated.

[For remainder of Meetings, see to-day's Journal.]

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female ends.

Prices— $\frac{1}{2}$ in. $\frac{3}{4}$ in. $1\frac{1}{2}$ in. $1\frac{1}{2}$ in. $1\frac{1}{2}$ in. $1\frac{1}{2}$ in. $2\frac{1}{2}$ in.
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AWARDED THE PRIZE MEDALS AT LEEDS, MANCHESTER, AND WREXHAM EXHIBITIONS, 1875 AND 1876.

HADFIELD'S STEEL FOUNDRY COMPANY,

ATTERCLIFFE, SHEFFIELD,

DEVOTE THEIR EXCLUSIVE ATTENTION TO THE MANUFACTURE OF

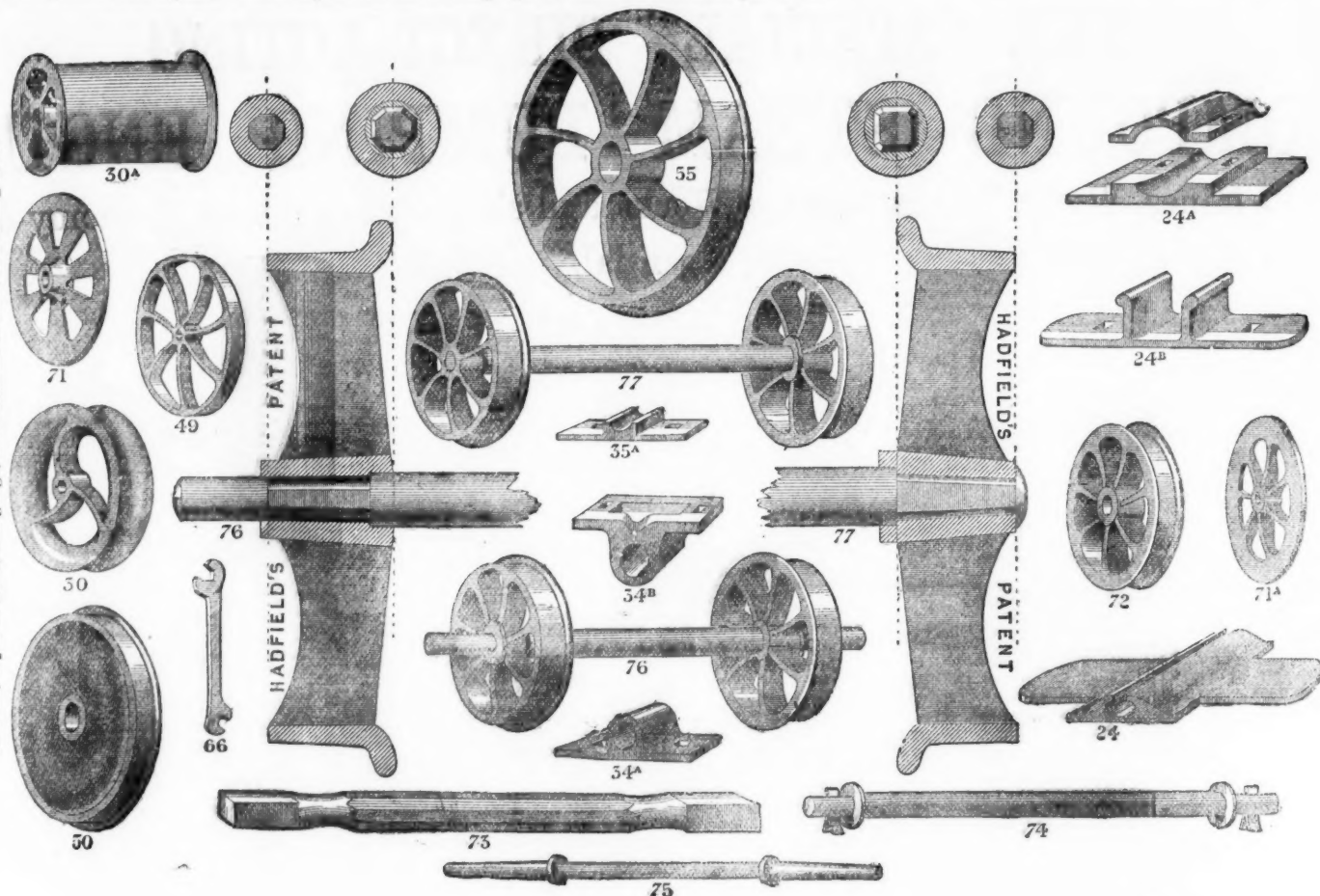
CRUCIBLE STEEL CASTINGS, for Engineering and Machine Purposes,

AND ARE THE SOLE MAKERS OF

HADFIELD'S CRUCIBLE STEEL WHEELS.

One of our departments is specially adapted for the manufacture of these Wheels (as shown below), for Collieries, Ironstone Mines, Slate Quarries, Ironworks, Lead Mines, &c., &c. We have made, and are now making, many HUNDRED THOUSANDS; and having Patented a New Method of Fitting Wheels upon axles, being cheap, effective, and expeditious, we can execute orders entrusted to us with promptitude, our capacity in this department alone being equal to about 2000 wheels per week.

N.B.—Prices per Set of Wheels and Axles, fitted complete, forwarded on receipt of wheel on tread, depth of tread, real gauge, and thickness of axles and rolling load.



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HADFIELD'S PATENT METHOD OF FITTING WHEELS UPON AXLES.

The advantages of the above system are that the Wheels being forced upon a Taper Square-ended Axle, by Machinery, and then riveted (the machine securing truth), it is impossible that they can come loose or get within gauge. They are very heavily fitted on, and run exceedingly true.

We construct the Arms of wheels upon the curved principle (as shown in the drawings above), consequently the shrinkage or cooling of the Castings is not interfered with, thus securing the greatest advantages of our very strong material.

CRUCIBLE CAST-STEEL WHEELS, when cast by us, are made from one-third to one-half lighter than Cast-Iron. They cannot be broken while working, even with rough usage, and will wear at least twelve times as long as Cast-Iron, thus saving animal and steam power, and reducing wear and tear immensely.

We would also draw special attention to our INCLINE PULLEYS and CAGE GUIDES, the adoption of which will prove highly advantageous.

MECHANICAL VENTILATION OF MINES.

THE UNION ENGINEERING COMPANY (C. SCHIELE AND CO.) undertake the Construction and Erection of their Colliery Ventilation Fans, of all sizes up to the largest required quantities of air. The leading features of their system are now generally known. Some of the specialties are: The absence of need for costly erections in masonry and brickwork; the small space required for the Machines, and the moderate first cost of the whole.

As the Fans are in a great measure self-contained, the necessary seats and connection with fit are of a simple and inexpensive character. They can be arranged to be placed below ground when required, and also to work on

Drawing Shafts. Certain sizes are often used to assist in Furnaces, with good effect. [Estimates and further information will be prepared on receipt of the necessary particulars.]

FOR SINKING PURPOSES, and also for places where small quantities of air are needed for Ventilating purposes, a Special Fan is made, in various sizes, with small engine combined, complete, arranged for both forcing and exhausting air.

NOISELESS BLOWING FANS, for Smithy Fires, and other purposes.

TURBINE WATER-WHEELS, specially designed and adapted for use in Coal Mines, for high falls of water, for the purpose of developing water power, where it is available, for use in hauling, pumping, and other works.

The Firm, having had an experience of nearly twenty-five years exclusively in the above Special Departments of Engineering, are prepared to advise on any matter affecting the application of Fans or Water Power in Collieries or elsewhere.

COAL-CUTTING MACHINERY, WINDING, HAULING, AND OTHER DESCRIPTIONS OF STEAM-ENGINES.

THE UNION ENGINEERING COMPANY (C. SCHIELE & CO.),

PNEUMATIC AND HYDRAULIC ENGINEERS,

(SOLE PROPRIETORS AND MAKERS OF SCHIELE'S LATEST PATENTS),

2, CLARENCE BUILDINGS, BOOTH STREET, MANCHESTER.

PATENT HAND-POWER ROCK DRILL.

IMMENSE SAVING OF TIME AND LABOUR.

STEAM POWER AND SKILLED LABOUR DISPENSED WITH.

PRICE COMPLETE, £50.

MOUNTED ON SUITABLE STANDS FOR SINKING, DRIVING, AND OPEN QUARRY WORK.

"TIMES," November 29th, 1877.

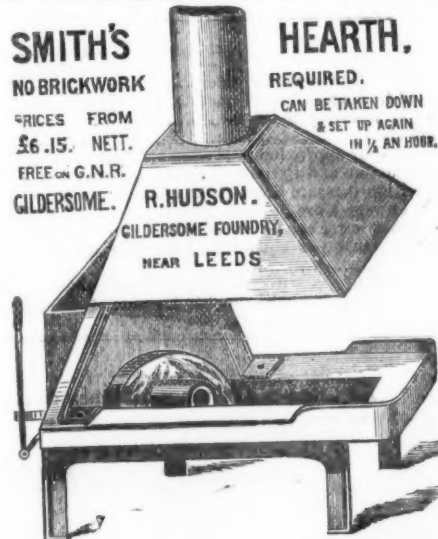
"Enough was done to demonstrate that the machine was well calculated to take its place in Mining and Quarrying Operations, and to successfully supersede for most purposes the slow and tedious process of hand-boring."

HAND-POWER ROCK DRILL COMPANY

(LIMITED).

THOS. B. JORDAN, SON, & MEIHE,

63, QUEEN VICTORIA STREET, LONDON, E.C.





PARIS INTERNATIONAL EXHIBITION, 1867.



VIENNA INTERNATIONAL EXHIBITION, 1873.



LONDON INTERNATIONAL EXHIBITION, 1874.

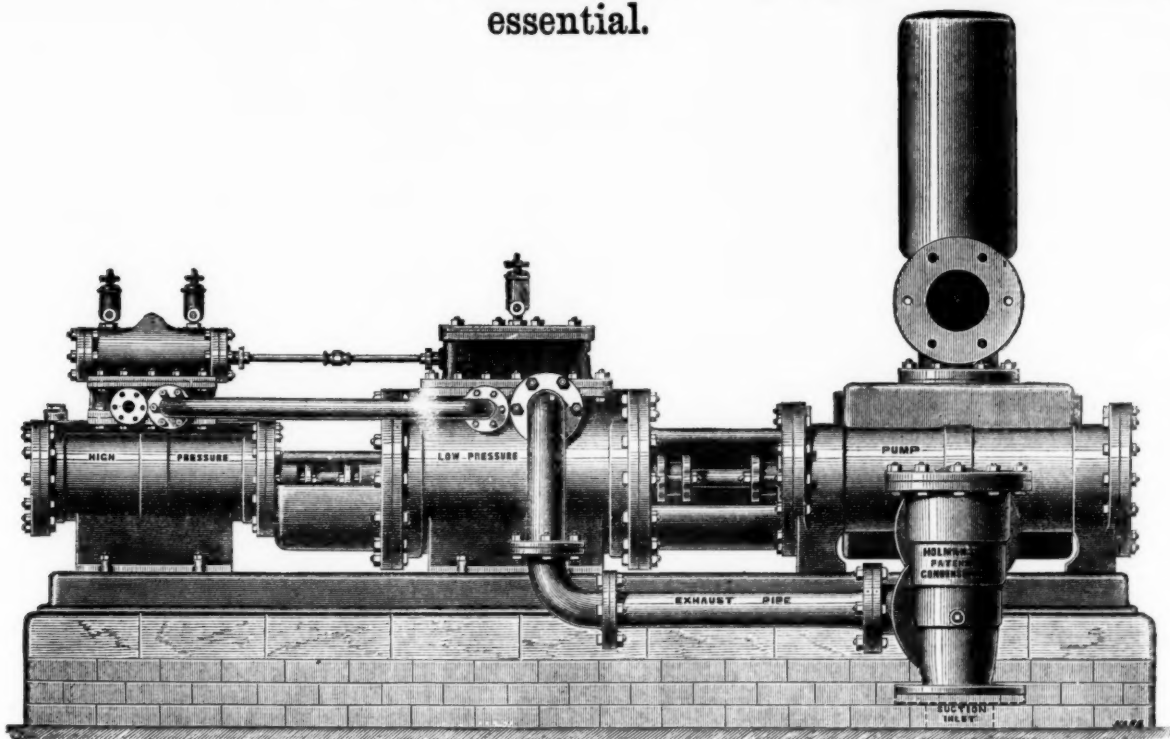


CORNWALL POLYTECHNIC SOCIETY, 1867 and 1873.

TANGYE BROTHERS AND HOLMAN,
10, LAURENCE POUNTNEY LANE, LONDON, E.C.,
AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

THE "SPECIAL" DIRECT-ACTING
COMPOUND STEAM PUMPING ENGINE

For use in Mines, Water Works, Sewage Works, and all purposes where Economy of Fuel is essential.



After several years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once

THE SIMPLEST AND MOST CERTAIN IN ACTION.

The illustration shows an extension of the principle of this Pump to a Compound Steam Pumping Engine, by which the economical advantages resulting from the expansion and condensation of steam are very simply and effectively obtained. The steam after leaving the high-pressure cylinder is received into and expanded in the low-pressure cylinder, and is thus used twice over before being exhausted into the condenser or atmosphere. The Engine combines simplicity, certainty of action, great compactness, fewness of parts, and consequent reduction in wear and tear.

Several thousands of the "Special" Steam Pumping Engines, with high-pressure cylinders only, are in use in British and Foreign Mines, Water Works, &c.,—and for confined situations, or where Engines of a comparatively small size only are necessary, they will still meet all requirements—but their application will be very largely increased, since it has been found practicable to embrace the important features of expanding and condensing the steam, so that increased power may be obtained, and the consumption of fuel greatly economised.

THE "SPECIAL" DIRECT-ACTING COMPOUND STEAM PUMPING ENGINE is the most simple appliance for deep mine draining and general purposes of pumping ever practically developed, and the first cost is very moderate compared with the method of raising water from great depths by a series of 40 to 50 fathom lifts. No costly engine-houses or massive foundations, no repetition of plunger lifts, ponderous connecting rods, or complication of pit-work are required, while they allow a clear shaft for hauling purposes.

SIZES AND PARTICULARS.

Diameter of High-pressure Cylinder.....In.	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Ditto of Low-pressure Cylinder.....In.	14	14	14	18	18	18	18	21	21	21	21	24	24	24	24
Ditto of Water Cylinder.....In.	4	5	6	5	6	7	8	6	7	8	10	7	8	10	12
Length of stroke.....In.	24	24	24	24	24	24	24	24	24	24	24	36	36	36	36
Gallons per hour approximate.....	3900	6100	8800	6100	8800	12000	15,650	8,800	12,000	15,650	24,450	12,000	15,650	24,450	35,225
Diameter Suction and Delivery.....In.	3	3½	4	3½	4	5	6	4	5	6	8	5	6	8	9
Diameter High-pressure Steam Inlet.....In.	1½	1½	1½	1½	1½	1½	1½	2½	2½	2½	2½	2½	2½	2½	2½
Diameter Low-pressure Steam Exhaust.....In.	1½	1½	1½	1½	1½	1½	1½	2½	2½	2½	2½	2½	2½	2½	2½
Height in feet water can be raised with 40 lbs. pressure per square inch in Non-condensing... cylinder.....	360	330	160	360	250	184	140	360	264	202	130	360	275	175	122
Ditto ditto ditto—with Holman's Condenser...	480	307	213	480	333	245	187	480	352	269	173	480	367	234	162
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	600	417	306	335	600	440	337	216	600	459	303	203

CONTINUED.

Diameter of High-pressure Cylinder.....In.	16	16	16	16	18	18	18	18	21	21	21	24	24	24	30	30
Ditto of Low-pressure Cylinder.....In.	28	28	28	28	32	32	32	32	36	36	36	42	42	42	52	52
Ditto of Water Cylinder.....In.	8	10	12	14	8	10	12	14	10	12	14	10	12	14	12	14
Length of stroke.....In.	36	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate.....	15,650	24,450	35,225	47,950	13,650	24,450	35,225	47,950	24,450	35,225	47,950	24,450	35,225	47,050	35,225	47,950
Diameter Suction and Delivery.....In.	6	8	9	10	6	8	9	10	8	9	10	8	9	10	9	10
Diameter High-pressure Steam Inlet.....In.	2½	2½	2½	2½	3	3	3	3	3½	3½	3½	4	4	4	5½	5½
Diameter Low-pressure Steam Exhaust.....In.	3	2	3	3	3½	3½	3½	3½	4	4	4	5	5	5	6½	6½
Height in feet water can be raised with 40 lbs. pressure per square inch in Non-condensing... cylinder.....	360	230	160	118	456	292	202	149	397	276	202	518	360	264	562	413
Ditto ditto ditto—with Holman's Condenser...	480	307	213	154	603	389	269	198	528	363	269	691	480	352	750	530
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	191	750	486	337	248	660	450	337	864	600	440	937	689

PRICES GIVEN ON RECEIPT OF REQUIREMENTS.

Any number of these Engines can be placed side by side, to work in conjunction or separately as desired, thereby multiplying the work of one Pump to any extent.

NORTH OF ENGLAND HOUSE ... TANGYE BROTHERS AND RAKE, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE... TANGYE BROTHERS AND STEEL, Tradeagar Place, NEWPORT. Mon.; and Oxford Buildings, SWANSEA.

STEAM BOILERS

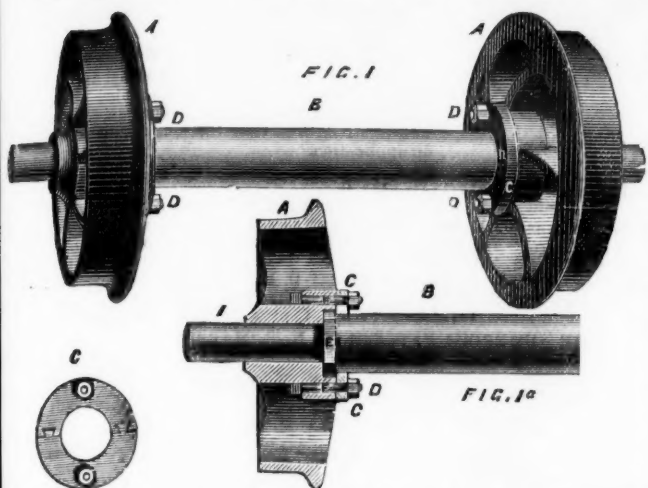
OF ALL KINDS MADE TO ORDER AT THE SHORTEST NOTICE BY THE

TURNBRIDGE IRON & BOILER WORKS COMPANY, LIMITED, HUDDERSFIELD.
London Agent—Mr. W. PARSEY, 46, FISH STREET HILL, E.C.

JOSEPH FENTON & SONS,
SYKES WORKS, SHEFFIELD, and 118, Cannon-street, LONDON, E.C.,
MANUFACTURERS OF
CRUCIBLE CAST STEEL CASTINGS,

HAVE PLEASURE IN CALLING THE ATTENTION OF THE MINING WORLD TO THEIR

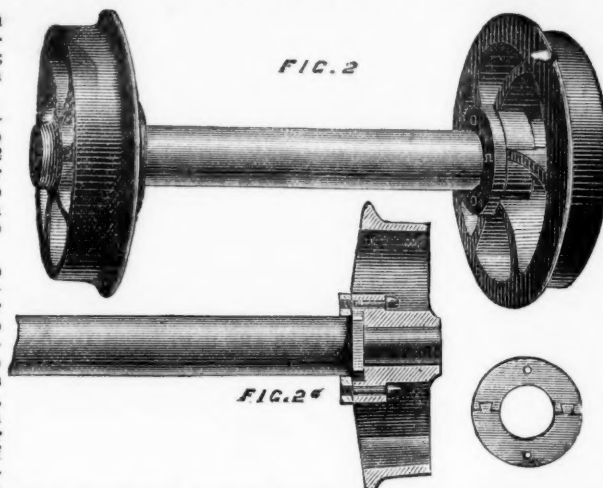
Patent Method of Fitting up Cast Steel Wheels and Axles.



Figs. 1 and 1a show a longitudinal view and plan of a pair of corf wheels and axles fitted up for outside bearings. A A. are the wheels; B. is the axle; C C, the washers; D D, the bolts; E, the collar on axle B; and F, the recessed boss in the wheel.

The wheel is cast with a recessed boss in the inside, made to any shape, corresponding in shape and depth with a collar formed on the axle. Figs. 2 and 2a show a longitudinal view and plan of a pair of corf wheels fitted up for inside bearings. The washers are secured to the boss of the wheel in outside bearings by bolts and nuts, and in inside bearings by set screws.

The advantages of the above system are:—A, the singular simplicity of fitting—enabling any inexperienced person, with the aid of a spanner or screw-driver, to detach the wheels from the axle or fit them together in a very short time. B, perfect solidity, the wheels and axles becoming as one piece. C, durability, no need of putting the wheels or axles into the fire, under any circumstances, which is so detrimental to wheels, rendering them remarkably brittle, and which under other systems are detached from the axle by the aid of fire. D, economy in fuel and wages, saving hundreds of pounds yearly to large coal owners. The



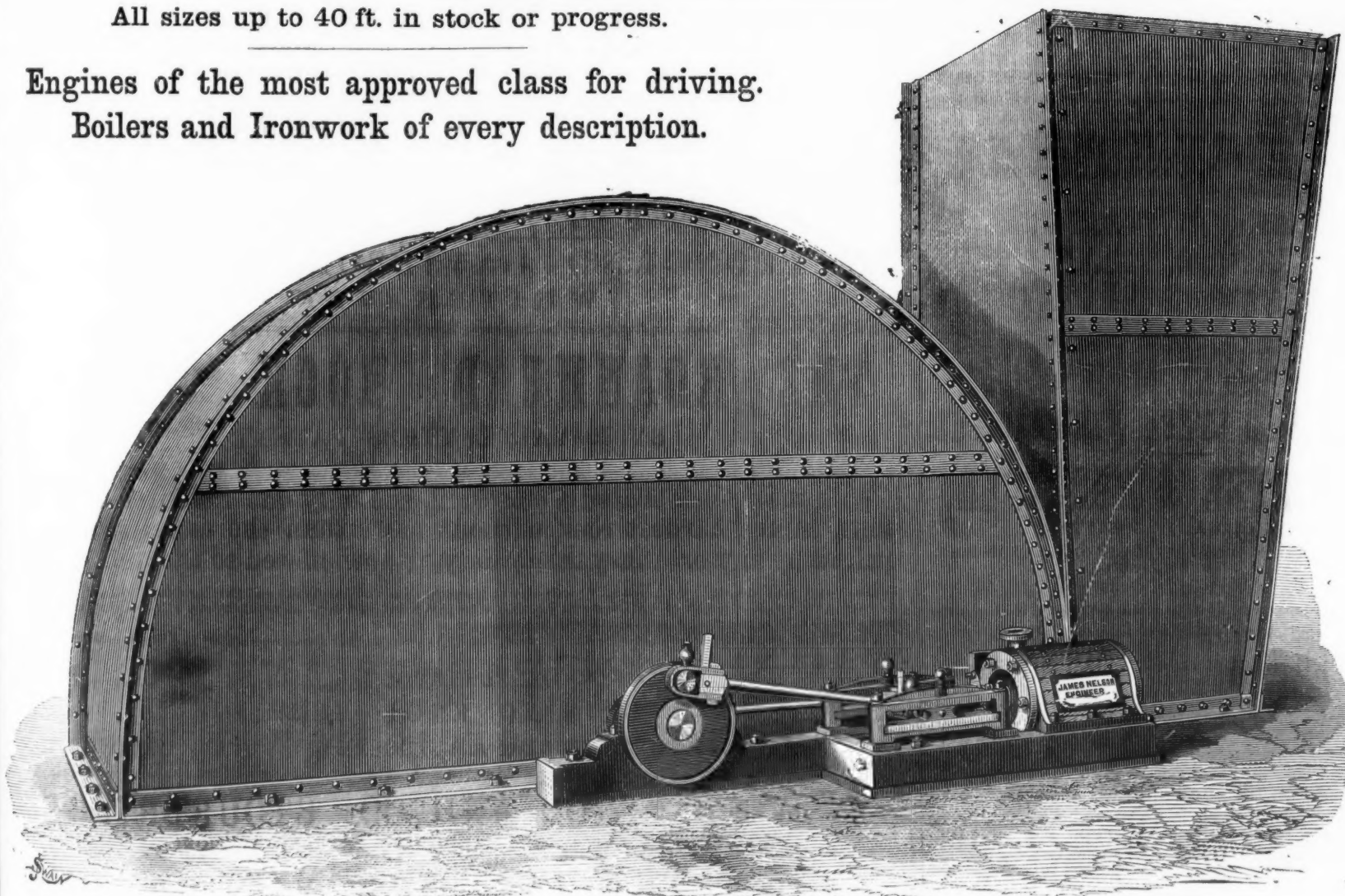
important desiderata secured by this invention of simplicity (so often wanted in the progress of mining operations in this country, but have at once been fully recognised by leading authorities in the mining world.

GUIBAL VENTILATING FAN FOR COLLIERIES AND MINES.

PRICES AND PARTICULARS ON APPLICATION.

All sizes up to 40 ft. in stock or progress.

Engines of the most approved class for driving.
Boilers and Ironwork of every description.



MANUFACTURED BY

JAMES NELSON, Marine and Stationary Engine Works,
GATESHEAD-ON-TYNE.

H. R. MARSDEN, PATENTEE AND ONLY MAKER BLAKE MACHINES, OF THE WELL-KNOWN ORE CRUSHERS AND STONE BREAKERS,

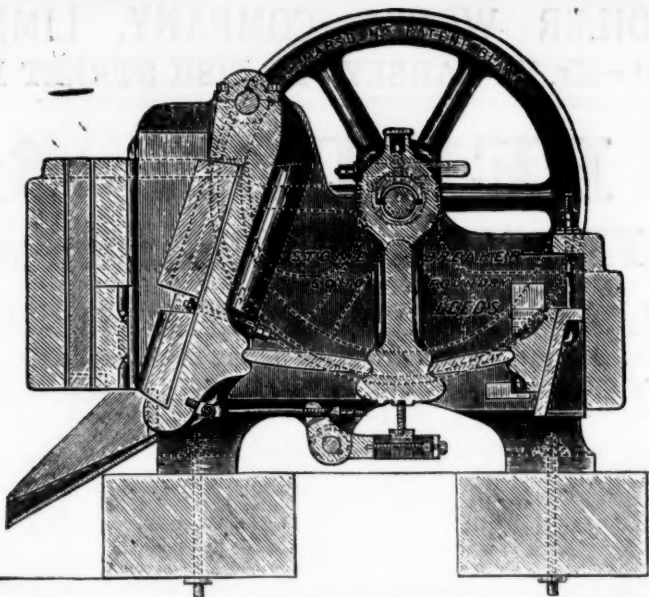
WITH THE
New Patent Reversible
CRUSHING OR CUBING
JAWS,

WHICH ARE CONSTRUCTED OF A PECULIAR
MIXTURE OF METAL, WEARING

Four times longer than any
other.

60 GOLD AND
SILVER MEDALS.

OVER 2000 NOW IN
USE.



For Crushing to any degree
of Fineness, or Breaking
to a required size.

Her Majesty's Government
USE THESE MACHINES
EXCLUSIVELY,
ALSO ALL THE GREAT
Mining Companies of the
World.

H. R. M. has long observed the want of cheaper
machines,
STONE AND ORE CRUSHERS,
And has at length, by means of improved appliances
for the production thereof, been enabled to reduce
the prices, yet keep up at the same time the well-
known strength of construction. Reduced prices
on application.

FIFTY per Cent., and upwards, saved by using these Machines.

TESTIMONIAL FROM MESSRS. JOHN TAYLOR AND SONS.

DEAR SIR,—We have adopted your Stone Breakers at many of the mines under our manage-
ment, and are pleased to be able to state that they have in all cases given the greatest satisfac-
tion. We are, yours faithfully,
H. R. Marsden, Esq. JOHN TAYLOR AND SONS.

DEAR SIR,—I have broken over 40,000 tons of very hard LIMESTONE into ROAD METAL for
the Newport and other Road Trusts, in your PATENT STONE BREAKER, AND ALL WITH
ONE PAIR OF JAWS, which are STILL IN USE. I do not think at all, but am quite sure yours
are the only Machines which fully perform the work you set them out to do, and there are none
in the Show can at all compare with them. Yours, truly,
H. R. Marsden, Esq. WILLIAM PRICE, Contractor, Gold Cliff, Monmouth.

INTENDING BUYERS ARE CAUTIONED AGAINST PURCHASING OR USING ANY INFRINGEMENT OF THE NUMEROUS PATENTS OF H. R. MARSDEN.
ILLUSTRATED CATALOGUES, TESTIMONIALS, and every information, on application to:—

H. R. MARSDEN, SOHO FOUNDRY, LEEDS, ENGLAND.
ONLY MAKER OF SAULT'S PATENT SYPHON CONDENSER.

TO COLLIERY AND MINE OWNERS.
R. HUDSON'S PATENT STEEL CORVES OR "TRAMS."

Patented July, 1875, and January, 1877.

Entire new principle, saving three-quarters to 2 cwt. "dead" weight per corve. Will hold 2 to 3 cwt. more coal than the ordinary kind, without increasing the outside dimensions. Can also be used
as water tube, and in thin seams are invaluable, as the height of the corves can be reduced without diminishing quantity of coal previously contained. In use, or on order, by the following coalowners:—
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Messrs. CLAYTON and SPEIGHT, Farnley, near Leeds. Wm. BAIRD and SON, Coatbridge, near Glasgow.
Messrs. JAS. WORMALD and SONS, Rawdon, near Wakefield. BETTISFIELD COLLIERY COMPANY, Bagillt, Wales.
KINGSWOOD COAL and IRON CO., near Bristol. EDWORTH COLLIERY COMPANY, near Bath.
MIDDLETON COLLIERY CO., near Leeds. | NEWTON COLLIERY, near Castleford. | Messrs. RUSHFORTH and Co., Adwalton, near Leeds. | Messrs. JAS. FUSSELL, SONS, and Co., Frome, Somersetshire.
T. VAUGHAN and Co.'s TRUSTEES, South Medomsley Colliery; and others.

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Are NOW PREPARED to SUPPLY their DRILLS, the ONLY
ONES that have been SUCCESSFULLY WORKED in the
MINES of CORNWALL. At DOLCOATH MINE, in the
HARDEST known ROCK, a SINGLE MACHINE has, since
its introduction in July, 1878, driven MORE THAN THREE
TIMES the SPEED of HAND LABOUR, and at TWENTY PER
CENT. LESS COST PER FATHOM.

In ordinary ends two machines may be worked together,
and at a proportionately increased speed. They are strong,
light, and simple, easily worked, and adapted for ends and
stopes, and the sinking of winzes and shafts.

The company are also prepared to SUPPLY COMPRESSORS,
and all necessary appliances for working the said Drills.

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(ORIGINAL PATENTEES),

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FOR COLLIERIES,

RAILWAY INCLINES, PLOUGHS, HAWSERS, &c.

SOLE MANUFACTURERS of the HOMOGENEOUS WIRE for the
ATLANTIC CABLES of 1835 and 1836.

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SOUTH WALES GAZETTE

(WEEKLY), established 1857.

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second edition at Five P.M. On Friday, the "Telegram" is combined with the
South Wales Weekly Gazette, and advertisements ordered for not less than six
consecutive insertions will be inserted at a uniform charge in both papers.
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IMPROVED AIR COMPRESSORS.

Makers of Pumping and Winding Engines, Steam Hammer,
Boilers, Pump Pipes, &c., &c. Castings of all kinds.

BRYDON AND DAVIDSON, ENGINEERS,
WHITEHAVEN.

THE ROANHEAD ROCK DRILL.

BY ROYAL LETTERS PATENT.

This justly-celebrated Rock Drill, the only one invented that will
work in the hardest rock without more than the usual repairs re-
quired by any ordinary machinery, is now offered to the public.

It has been most successfully worked in the well-known Hematite Mines of Lancashire and Cumberland. Will drive 50 to 60 ft.
in hard rock without change of drill, and can be worked by any miner, and kept in repair by any blacksmith. It is the most
simple rock drill ever invented, and cannot with fair usage get out of order.

Plans, Estimates, including Compressors, and all other Mining Machinery, supplied on application to the sole makers,—

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